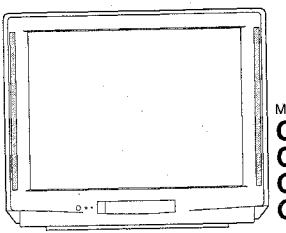
1994

MITSUBISHI

Service Manual

COLOUR TV



MODEL

CT-29AS1EDT
CT-29AS1ESDT
CT-29AS1EST
CT-29AS1EST(Y)

CAUTION

Before servicing this chassis, it is important that the service person reads the " SAFETY PRECAUTIONS " in this service manual.

SPECIFICATIONS

- **Power Input** : AC 230V; 50Hz
- **Power Consumption** : [CT-29AS1EST(Y)] 112W
  [CT-29AS1EDT,CT-29AS1EST] 123W
  [CT-29AS1ESDT] 128W
- **Reception System** : CCIR-I, B/G, L, D/K
- **Colour System** : PAL, SECAM, 3.58 & 4.43 NTSC
- **Reception Frequency** : VHF 47~470MHz
  UHF 470~862MHz
- **Aerial Input** : 75Ω
- **Speaker** : 80mm x 120mm Oval type, 2pcs.
- **Chassis** : E-16
- **Picture tube** : A68EEH038X301
- **Cabinet Dimensions** : 692 (W) X 580 (H) X 484 (D) mm
- **Weight(Approx.)** : 41kg

• Weight and dimensions shown are approximate.
• Design and specifications are subject to change without notice.

MITSUBISHI ELECTRIC

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CIRCUIT DIAGRAM

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. " Dolby " and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

SAFETY PRECAUTIONS

NOTICE: Observe all cautions and safety related notes located inside the receiver cabinet and on the receiver chassis.

WARNING

1. An isolation transformer should be used between the television receiver and the AC supply point before any test/service is performed on a LIVE chassis television receiver.
2. Operation of these receivers outside the cabinet or with the cover removed, involves a shock hazard from the receiver power supplies. Work on the receiver should not be attempted by anyone who is not thoroughly familiar with precautions necessary when working on high voltage equipment.
3. Do not install, remove or handle the picture tube in any manner unless shatter-proof goggles are worn. People not so equipped should be kept away while the picture tube is being handled. Keep the picture tube away from the body while handling.
4. When service is required, observe the original lead dressing. Extra precaution should be given to assure correct lead dressing in the high voltage area. Where a short-circuit has occurred, replace those components that indicate evidence of overheating.

X-RADIATION WARNING

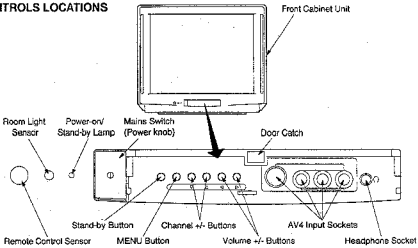
Under fault condition the surface of the cathode ray tube may generate X-Radiation. As a precaution during service, and if possible, the use of a lead apron is recommended for shielding while handling.
When replacing the cathode ray tube use only the designated replacement part since it is a critical component with regard to X-Radiation as noted above (No high-voltage adjustments are provided).

LEAKAGE CURRENT COLD CHECK

Before returning the receiver to the customer, it is recommended that leakage current be measured according to the following methods.
With the AC plug removed from the AC source, place a jumper across the two AC plug prongs. Turn the receiver AC switch on. Using an 500V D.C insulation Tester, connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (antennas, screwheads, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistance reading of 4 meg ohm. Any resistance below this value indicates an abnormality which requires corrective action.

CONTROLS AND CABINET PARTS

CONTROLS LOCATIONS



Note: After pressing the MENU button, the CHANNEL and VOLUME buttons control the MENU functions.

Fig. 1-1

BACK PANEL

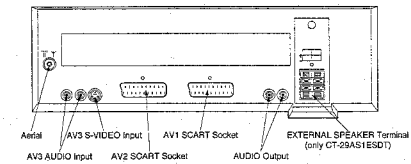


Fig. 1-2

SCART SOCKET CONNECTORS

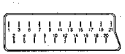


Fig. 1-3

PIN \ MODE	AV1	AV2
1	AUDIO OUT R	
2	AUDIO IN R	
3	AUDIO OUT L	
4	AUDIO EARTH	
5	BLUE EARTH	EARTH
6	AUDIO IN L	
7	BLUE IN	NOT CONNECTED
8	FUNCTION SWITCH	
9	GREEN EARTH	EARTH
10	NOT CONNECTED	
11	GREEN IN	NOT CONNECTED

PIN \ MODE	AV1	AV2
12	NOT CONNECTED	
13	RED EARTH	EARTH
14	BLANKING EARTH	EARTH
15	RED IN	NOT CONNECTED
16	RGB STATUS (BLANKING)	NOT CONNECTED
17	VIDEO EARTH	
18	VIDEO IN EARTH	
19	VIDEO OUT	
20	VIDEO IN	
21	SOCKET EARTH	

Table 1

DISASSEMBLY

Removal of Back Cover

1. Remove the 1 screws securing the Rear Terminal Panel to the Back Cover.
2. Remove the 7 screws securing the Back Cover to the Front Cabinet.
3. Hold the low corners of the Back Cover and release them a little (refer to Fig. 2-1). Lift the lower centre "tongue" of the back cover out of the turntable rim well (refer to Fig. 2-1). Moving around the periphery of the Back Cover (refer to Fig. 2-2) release and remove it from the Front Cabinet.

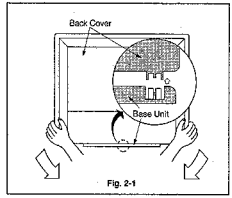


Fig. 2-1

Installation of Back Cover

1. Fit the Back Cover so that it is sitting lightly around the periphery of the Front Cabinet. Check that leads are not caught between the Back Cover and the Rear Terminal Panel. Make sure the power cable is correctly positioned and secure in its cable clamp.
2. Push the bottom corners of the Back Cover down ensuring the "tongue" of the Back Cover engages the Front Cabinet correctly. At this point the Back Cover may not go the full way in.
   Fit the "tongue" at the bottom of the Back Cover into the turntable well by lifting the back cover (refer to Fig. 2-1). Now push the Back Cover carefully into place. Confirm that the Back Cover fits perfectly to the Front Cabinet with no space between the top, bottom or any side.
3. Fix the Back Cover with the screws removed during the Back Cover removal (refer to Removal of Back Cover items 1 and 2).

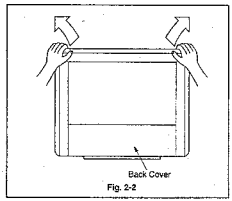


Fig. 2-2

LEAD CONNECTOR COLOUR CODE

Lead connectors show the connector names by colour codes of leads, not printed any connector names.
When connecting or removing them, identify connector names according to colour codes in the table below.
Colour Codes (See Pin Nos. 1 and 2 of connectors).

EXAMPLE

COLOUR	CODE
BLACK	A
BROWN	B
RED	C
ORANGE	D
YELLOW	E
GREEN	NOT USED (GROUND)
BLUE	G
VIOLET	H
GREY	J
WHITE	K
PINK	L

Table 2

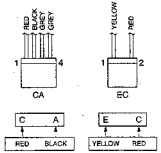


Fig. 3

EXTENSION CORD LIST

PRINTED CIRCUIT BOARD	CONNECTOR	PARTS No.
DOLBY-S(only CT-29AS1ESDT)	DD (8 pin), DE (5 pin)	869C431O30
TEXT	HB (8 pin)	
TEXT	HA (7 pin)	869C431O70

Table 3

LEAD DRESS

The lead wires to be clamped are listed in the table below.

NOTE: The inner wires are clamped so that they do not come close to heat generating or high voltage parts. After servicing route all wires in their original position.

*The anode lead wire is routed so no tensile strength is applied to the cap. If the mounting angle of the anode cap and the route of the anode lead wires are changed, return them to the initial route shown below.
*Reverse printed characters indicates aerial clamp.

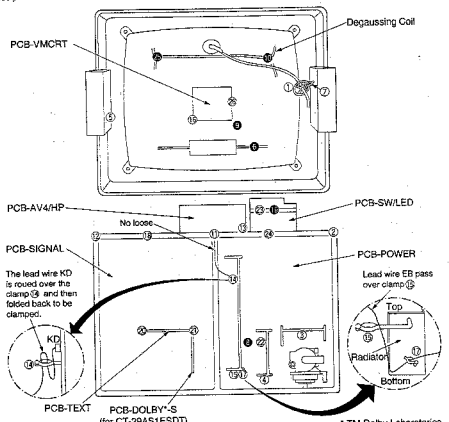


Fig. 4

LEAD WIRE	CLAMP
Anode Lead Wire	①
Focus Lead Wire	②-❹-⑤
Screen Lead Wire	④-❸-⑤
Spacer Ring	⑦
CA	⑧-⑨-⑫-⑪
CX	⑫-❶ (make a loop)-❷
DA	⑨-⑩-⑪
DY	⑪-❷ (make a loop)
EB	⑬-⑫
GA	⑭-⑮-⑯
HC	⑪-⑰
HD	⑪-⑩-⑨-⑧-❶

LEAD WIRE		CLAMP
JA		⑱-⑪-⑭-⑬-⑪
KA		⑪
KD		⑭-⑮-⑰
LB		⑭-❶ (make a loop)-⑤
MD		⑪-⑩-⑨-⑧
MV		⑤ (2 layer clamp)
PC		❶-❷-⑤
SA		❶-⑤ (2 layer clamp)
DC	1pin(Red)-SP302(+)	⑪-⑫-❶-⑤
	2pin(White)-SP302(-)	
	3pin(Red)-SP301(+)	⑪-⑫-❶-❶ (make a loop)
	4pin(White)-SP301(-)	

Table 4

ELECTRICAL ADJUSTMENTS

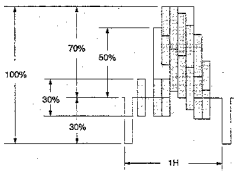
Perform only the alignments required.
If proper equipment is not available, do not attempt an alignment.

◘ Measuring equipment and Jigs

- Oscilloscope(Unless otherwise specified in particular, use 10:1 probes)
- Signal generator
- Direct current voltmeter
- Direct current milliammeter
- Frequency counter
- Electrical tools

◘ Test signal

1) Monoscope signal
   When you have no monoscope signal source for adjustment, connect the unit to a VCR and play an alignment tape(Monoscope).
2) Colour bar signal
   In this manual, unless otherwise specified in particular, use the colour bar signal specified below.

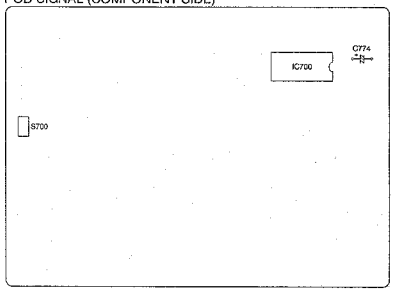


PAL

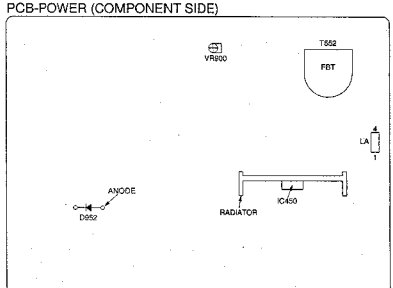
Split-Field Colour Bars (with 100% window)

Location of Test Points and Adjustments

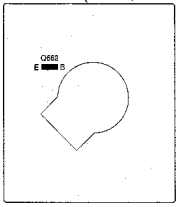
PCB-SIGNAL (COMPONENT SIDE)



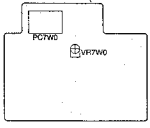
PCB-POWER (COMPONENT SIDE)



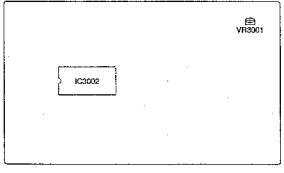
PCB-VMCRT (COMPONENT SIDE)



PCB-SW/LED (COMPONENT SIDE)



PCB-DOLBY-S (COMPONENT SIDE)
[for CT-29AS1ESDT]



Circuit Adjustment Mode

On this model, the following adjustment items may only be performed using the remote hand unit.

To perform these adjustments, activate the circuit adjustment mode using the following procedure:

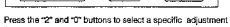
1. Change to the circuit adjustment mode

1. Turn the power on.
2. Press the service switch (S700) on the back panel and the "8" button within five seconds. (The screen will change to the circuit adjustment mode.)
   If not changed to the circuit adjustment mode, repeat the step again.

2. Selection of adjustment functions and adjustment items

To select an adjustment item in the circuit adjustment mode, select first the adjustment function, that includes the adjustment item to be selected, and next select the adjustment item.
Refer to the following pages for the listing of adjustment functions and adjustment items.

1. Press the "CM" button on a remote hand unit to select an adjustment function. Each time the button is pressed, the adjustment function changes in the following sequence.



2. Press the "2" and "0" buttons to select a specific adjustment item.
   - If "2" button is pressed, the adjustment item number increases.
   - If "0" button is pressed, the adjustment item number decreases.

3. Modification of adjustment value

1. After selecting an adjustment item, press the "7" and "5" buttons to change adjustment value.
   - If "7" button is pressed, the adjustment value increases.
   - If "5" button is pressed, the adjustment value decreases.
2. Press the "4" button to record the adjustment value in memory. The display of characters goes red for approx. two seconds in this step.

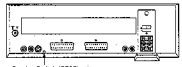
Note: If the circuit adjustment mode is terminated without pressing the "4" button, the adjustment value is not recorded.

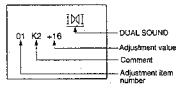
Note: When " 4 " button is pressed with IF AGC Adjustment mode, only IFG values are written.

Note: If cancelling your changed values, for example, because of your mistake, press the "8" button or set power off. The values will be set the former adjustment values before your adjustment.

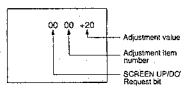
4. Termination of circuit adjustment mode

1. The circuit adjustment mode is terminated by turning the power off.

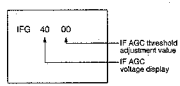




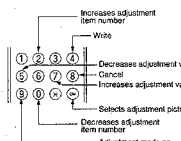
HF/OPTION Adjustment mode



VCJ Adjustment mode



IF AGC Adjustment mode



When Replacing IC702 (EEPROM)

Turn the mains switch on and the TV will revert to stand-by mode.
Leave the TV for approx. 3 seconds for the EEPROM to be initialised.
Turn the TV on out of stand-by mode.
The initialised values of the EEPROM are " 0 ".
Program the EEPROM by performing electrical set ups of HF/OPTION and VCJ.

Adjustment Items

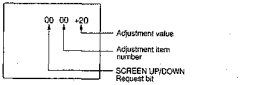
VCJ	
Adjustment item number	Item
00	V-AMP
01	V-BREATHING CORRECTION
02	PARABOLA-AMP
03	PARABOLA-TILT
04	V-LIN
05	CORNER CORRECTION
06	H-AMP
07	MODULATION ANGLE
08	V-POSITION
09	H-PHASE
0A	BLUE DRIVE
0B	GREEN DRIVE
0C	RED DRIVE
0D	CONTRAST
0E	BRIGHTNESS
0F	COLOUR SATURATION
10	HUE
2F	V-AMP (50Hz)
30	PARABOLA-AMP (50Hz)
31	H-AMP (50Hz)
32	V-POSITION (50Hz)
33	H-PHASE (50Hz)
34	H-PHASE (TEXT)
35	H-PHASE (SECAM)
40	Y-DELAY(PAL)
41	Y-DELAY(SECAM)
42	Y-DELAY(NTSC)
43	Y-DELAY(PAL S-in)
44	Y-DELAY(SECAM S-in)
45	Y-DELAY(NTSC S-in)

HF/OPTION	
Adjustment item number	Item
00	RF-AGC
01	VCO(L-V LOW)
02	RF SYSTEM
03	DUAL SOUND(MSF-MPX SYS)
04	SVM
05	AT
06	DOLBY
07	INPUT BALANCE
08	SENSOR/DISTANCE
09	FRONT SPEAKER OFF
0A	FORCED TV/RGB
0B	IFG-COL SAT
0C	CTI

IF AGC	
Adjustment item number	Item
——	IF AGC SET

When Replacing Flyback Transformer (FBT)

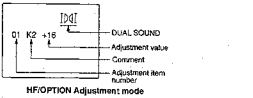
*After replacing FBT (T552), roughly adjust SCREEN control on FBT (T552) according to the following steps.
1. Supply an RF signal (programme).
2. Press the service switch (S700) on the rear and the "9" button on the remote hand unit within five seconds to turn the adjustment mode on.
3. Press the "CM" button to select the VCJ adjustment mode.
4. Make sure that the SCREEN UP/DOWN REQUEST BIT is "00" on both bright and dark pictures.
   If not so,set it to "00" with the SCREEN control on FBT (T552).
   * "01" : Turn the SCREEN control counter-clockwise.
   * "10" : Turn the SCREEN control clockwise.



VCJ Adjustment mode

Before Adjusting

*Before circuit adjustment, set any value to the adjustment item shown in the below table according to the following steps.
1. Supply an RF signal (programme).
2. Press the "OPTIMUM" button on the remote hand unit to the factory preset levels for all picture and sound adjustments except volume.
3. Activate the circuit adjustment mode. (refer to page 9)
4. Set the adjustment function to "VCJ". ("CM" button)
5. Make sure the SCREEN UP/DOWN REQUEST BIT is "00".If not so, set it to "00" with SCREEN control on FBT.
6. Set the adjustment function to "HF/OPTION". ("CM" button)
7. Set the adjustment value of the adjustment items as shown in table below.
8. Record the adjustment value in the EEPROM. ("4" button)



HF/OPTION Adjustment mode

	Adjustment item									
Number	02	03	04	05	06	08	09	0A	0B	0C
Comment	PAC	MCS	TXT	SVM	AT	SNS	SP	RGB	COL	CTI
CT-29AS1EDT	3	3	1	1	0	2	1	2	0	1
CT-29AS1ESDT	3	2	1	1	1	2	1	2	0	1
CT-29AS1EST	3	2	1	1	0	2	1	2	0	1
CT-29AS1EST(Y)	3	2	1	1	0	2	1	2	0	1

[VIF Circuit]
1. RF AGC

Adjustment purpose The best receiving condition of RF signal.

Symptom when incorrectly adjusted Poor S/N ratio or cross modulation.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	RF signal (programme)
Input terminal	RF IN terminal

1. Supply an RF signal (programme).
2. Turn on AFT.
3. Activate the circuit adjustment mode.(refer to page 9)
4. Set the adjustment function to "HF/OPTION".("CM" button)
5. Set the adjustment item number to "00" (RF-AGC). ("2" or "0" button)
6. Adjust the value of item number "00" so that the picture and sound have no beat, noise and inter-modulation distortion.

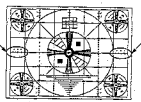
[Deflection Circuit]
2. Horizontal Centre Horizontal Width

Adjustment purpose Horizontal position and width of picture.

Symptom when incorrectly adjusted Picture too shifted to the left, or the right. Too compressed or too expanded horizontal width of picture.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (monoscope)
Input terminal	VIDEO IN terminal

* Before adjusting, set the value of the adjustment item number "01" (V-Breathing correction) to "-32".
1. Supply a VIDEO signal (monoscope).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the adjustment item number to "09" (H-Phase). ("2" or "0" button)
5. Adjust the value of item number "09" so that the readings of the left and right markers are the same. ("7" or "5" button)
6. Set the adjustment item number to "06" (H-Amp). ("2" or "0" button)
7. Adjust the value of item number "06" so that the sum of the left and right markers is 4.5–6.0. (equivalent to 7.0–9.0% overscan) ("7" or "5" button)



Monoscope signal

[Deflection Circuit]
3. East West PCC

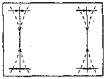
Adjustment purpose Set the horizontal linearity of the picture.

Symptom when incorrectly adjusted Poor side picture, geometry.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (crosshatch)
Input terminal	VIDEO IN terminal

* Before adjusting, set the value of the adjustment item number "01" (V-Breathing correction) to "-32".
1. Supply a VIDEO signal (crosshatch).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the adjustment item number to "05" (Corner Correction). ("2" or "0" button)
5. Set the value of item number "05" to "-22". ("7" or "5" button)
6. Set the adjustment item number to "03" (Parabola-Tint). ("2" or "0" button)
7. Observe the second vertical lines from the sides of left and right. Adjust the value of item number "03" so that the upper and lower distortions are symmetrical. ("7" or "5" button)
8. Set the adjustment item number to "02" (Parabola-Amp). ("2" or "0" button)
9. Observe the second vertical lines from the sides of left and right. Adjust the value of item number "02" so that the both lines are straight. ("7" or "5" button)
   If necessary, repeat step2 to 9 above.
10. Supply a VIDEO signal (monoscope).
11. Make sure the horizontal width and horizontal centre.
    If shifted, adjust item 2 (Horizontal Centre and Horizontal Width) and this one again.

Parabola-Tint



Parabola-Amp

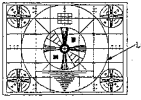
[Deflection Circuit]
4. Vertical Height Vertical Linearity

Adjustment purpose To set vertical height and linearity of the picture.

Symptom when incorrectly adjusted The vertical size of the picture will be too large or incorrect vertical linearity of the picture.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (monoscope)
Input terminal	VIDEO IN terminal

1. Supply a VIDEO signal (monoscope).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the adjustment item number to "00" (V-Amp). ("2" or "0" button)
5. Adjust the value of item number "00" for approx. 90% vertical size of raster. ("7" or "5" button)
6. Set the adjustment item number to "04" (V-Lin). ("2" or "0" button)
7. Adjust the value of item number "04" for symmetry of vertical linearity. ("7" or "5" button)
8. Set the adjustment item number to "00" (V-Amp). ("2" or "0" button)
9. Adjust the value of item number "00" so that the largest circle is completely round.

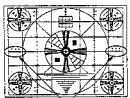


Monoscope signal

[Deflection Circuit]	Adjustment purpose	To set the vertical position of the picture.
5. Vertical Centre Position	Symptom when incorrectly adjusted	The picture will be too high or too low, on the screen.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (monoscope)
Input terminal	VIDEO IN terminal

1. Supply a VIDEO signal (monoscope).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the adjustment item number to "0B" (V-Position). ("2" or "0" button)
5. Adjust the value of item number "0B" so that the deviation of horizontal marker of monoscope within ±3mm from the vertical centre on the screen. ("7" or "5" button)



Horizontal markers
Monoscope signal

[Deflection Circuit]	Adjustment purpose	Linearity, position and width of horizontal and vertical and PCC.
6. Deflection Circuit (60Hz PAL, TEXT and SECAM)	Symptom when incorrectly adjusted	Bad linearity, PCC and shifted picture.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (programme)
Input terminal	VIDEO IN terminal

1. Supply a VIDEO signal (programme).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the value of the adjustment item numbers "2F", "30", "31", "32", "33", "34" and "35" to the standard values. ("2", "0", "7" and "5" buttons)
5. Input each signal and make sure that the above items are correctly adjusted. If incorrectly adjusted, adjust the item again.

Ajustment item number	Item	Standard value
2F	V-AMP (60Hz)	+5
30	PARABORA-AMP (60Hz)	+2
31	H-AMP (60Hz)	+3
32	V-POSITION (60Hz)	-11
33	H-PHASE (60Hz)	+2
34	H-PHASE (TEXT)	0
35	H-PHASE (SECAM)	-7

[CRT Circuit]	Adjustment purpose	The best white balance of picture.
7. White	Symptom when incorrectly adjusted	Coloured monochrome picture.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (white raster)
Input terminal	VIDEO IN terminal

1. Supply a VIDEO signal (white raster).
2. Set "COLOUR TEMPERATURE" on the picture adjustments to "MID".
3. Activate the circuit adjustment mode. (refer to page 9)
4. Set the adjustment function to "VCJ". ("CM" button)
5. Set the value of the adjustment item numbers "0A", "0B" and "0C" to all "+5". ("2", "0", "7" and "5" buttons)
6. Adjust the value of the adjustment item numbers "0A", "0C" to set white on the screen to the best. ("2", "0", "7" and "5" buttons)

[CRT Circuit]	Adjustment purpose	Sharpness of picture.
8. Focus	Symptom when incorrectly adjusted	Poor sharpness of picture.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	RF signal (programme)
Input terminal	RF IN terminal

1. Supply an RF signal (programme).
2. Set "SVM" on the picture adjustments to "OFF".
3. Adjust FOCUS control on FBT (T552) to the best overall focus.
4. Set "SVM" on the picture adjustments to "ON".

PCB-POWER (COMPONENT SIDE)

[Video Circuit]
9. Contrast, Brightness

Adjustment purpose The best value for beam current.

Symptom when incorrectly adjusted The picture will be too bright or too dark.

Measuring instrument	DC milliammeter
Test point	+lead: connector LA pin 1 - lead: connector LA pin 4
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (black raster)
Input terminal	VIDEO IN terminal

*This adjustment must follow the Deflection circuit adjustments.
*Preheat the set for twenty minutes or more.

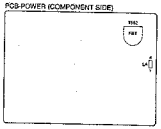
1. Supply a VIDEO signal (black raster).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the value of the adjustment item number "0E" to "-32". ("2", "0", "7" and "5" buttons)
5. Set the value of the adjustment item number "0D" to "+31". ("2", "0", "7" and "5" buttons)
6. Make sure that SCREEN UP/DOWN REQUEST BIT is "00".
   If not so, set it to "00" with SCREEN control on FBT (T552).
7. Supply a VIDEO signal (white raster).
8. Set the value of the adjustment item number "0E" to "+31". ("2", "0", "7" and "5" buttons)
9. Make sure that SCREEN UP/DOWN REQUEST BIT is "00".
   If not so, set it to "00" with SCREEN control on FBT (T552).
10. Supply a VIDEO signal (colour bar).
11. Set the value of the adjustment item number "0F" to "-32". ("2", "0", "7" and "5" buttons)
12. Set the adjustment item number to "0E" (Brightness). ("2" or "0" button)
13. Observe the luminance in black bar area and blue bar area.
    Adjust the value of item number "0E" so that blue bar is slightly brighter than black bar area.
14. Observe the DC current between connector LA pin 1 and connector LA pin 4.
    (Use connector LA pin 4 for ground.)
15. Set the adjustment item number to "00" (Contrast). ("2" or "0" button)
16. Adjust the value of item number "0D" so that the DC current is a value listed in the table below.

	CT-29AS1EDT CT-29AS1ESDT CT-29AS1EST CT-29AS1EST(Y)
DC current	1,200±20μA

17. If in the step16 the blue bar area brightens, set the adjustment item number "0E" to dark.
18. Make sure that SCREEN UP/DOWN REQUEST BIT is "00".
    If not so, repeat step 1 to 17.

Note: Adjustment item 11 (Colour Output) must be performed immediately after this adjustment.

PCB-POWER (COMPONENT SIDE)



[Video Circuit]
10. Y-Delay

Adjustment purpose To synchronize Y signal with C signal.

Symptom when incorrectly adjusted Y signal not synchronizing with C signal on screen.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	RF signal (programme)
Input terminal	RF IN terminal

1. Supply an RF signal (programme).
2. Activate the circuit adjustment mode. (refer to page 9)
3. Set the adjustment function to "VCJ". ("CM" button)
4. Set the adjustment item number to "40~45" (Y-Delay). ("2" or "0" button)
5. Set the value of item number "40~45" as shown in table below.
6. Supply a composite video signal and a S-VIDEO signal in PAL, SECAM and NTSC system respectively. Confirm that the Y signal and C signal are synchronized on each of the screens.

	COMPOSITE VIDEO			S-VIDEO		
	40	41	42	43	44	45
	PAL	SECAM	NTSC	PAL	SECAM	NTSC
Value	+6	+12	+3	+6	+12	+3

[Video Circuit]
11. Colour Output

Adjustment purpose Colour output of video signal

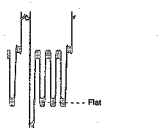
Symptom when incorrectly adjusted Excess or insufficient colour.

Measuring instrument	Oscilloscope
Test point	base of Q662
EXT trigger	—
Measurement range	DIV 2V TIM 10μs
Input signal	VIDEO signal (colour bar)
Input terminal	VIDEO IN terminal

*Perform the adjustment after the White and Video circuit adjustment.

1. Supply a VIDEO signal (PAL Colour bar).
2. Observe the waveform at the base of Q662.
3. Activate the circuit adjustment mode. (refer to page 9)
4. Set the adjustment function to "VCJ". ("CM" button)
5. Set the adjustment item number "0F" (Colour Saturation). ("2" or "0" button)
6. Adjust the value of item number "0F" so that the waveform as shown below. ("7" or "5" button)

PCB-VMCRT (COMPONENT SIDE)



Continued on the next page.

7. Supply a VIDEO signal (NTSC Colour bar).
8. Set the adjustment item number "10" (Hue). ("2" or "0" button)
9. Adjust the value of item number "10" so that the waveform as shown above. ("7" or "5" button)
10. After completing the steps above, add the value shown below to the value of item number "0F" adjusted in the step 5.

	CT-29AS1EDT CT-29AS1ESDT CT-29AS1EST CT-29AS1EST(Y)
Adding value	+5

[Dolby Circuit]
12. Input Balance
(for CT-29AS1ESDT)

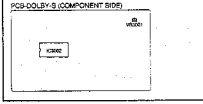
Adjustment purpose To minimize sound escaping from internal speaker to surround speaker when selecting MONORAL sound.

Symptom when incorrectly adjusted Sound escaping from internal speaker to surround speaker.

Measuring instrument	—
Test point	—
EXT trigger	—
Measurement range	—
Input signal	RF signal (Monoral 400Hz)
Input terminal	RF IN terminal

1. Supply an RF signal (Monoral 400Hz).
2. Connect the surround speakers to the surround speaker terminal.
3. Press the MENU button on the remote hand unit to display the SET UP MENU.
Turn off the INTERNAL SPEAKER SWITCH in the SET UP MENU.
4. Press the MENU button on the remote hand unit to display the SOUND MENU.
Select the DOLBY SURROUND of the SURROUND MODE in the SOUND MENU.
5. Set to centre the SURROUND LEVEL and the INPUT BALANCE in the DOLBY SURROUND.
6. Set to centre the VOLUME in the SOUND MENU.
7. Adjust VR3001 so that the 400Hz sound from the surround speakers is minimized.

PCB-DOLBY-S (COMPONENT SIDE)



[AI Circuit]
13. Sensor Level

Adjustment purpose Set the operating conditions for the AI light sensor.

Symptom when incorrectly adjusted Too dark a picture in a bright room or too bright a picture in the dark room, when AI is selected.

Measuring instrument	DC Voltmeter
Test point	+lead: +side of C774 - lead: -side of C774
EXT trigger	—
Measurement range	—
Input signal	—
Input terminal	—

*When replacing PC7W0 or VR7W0, perform this adjustment.
1. Shut the shutter or curtain in the room and intercept the outside light.
2. Turn off the light except the ceiling light. If there are more than one ceiling light in the room, turn on the light which is located at centre of the room only.
3. Place the set shown in Fig. 1. Do not hide the source of light with the cover from set side.

PCB-SIGNAL (COMPONENT SIDE)

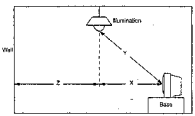


Fig. 1

4. Measure X, Y and Z shown in Fig. 1 of the room. And calculate the brightness at the front of the set L by following method.

Note: Find the coefficient A or B refer to Table. 1 and 2. "W" is wattage for the source of light.

$L_1 = 11 \cdot A \cdot X \cdot W / Y^2$
$L_2 = A \cdot B \cdot W / Z^2$
$L = L_1 + L_2$

PCB-SWI/LED (COMPONENT SIDE)

Illumination	Value of A
Fluorescent lamp (straight tube, loop tube)	1
Incandescent lamp	0.15
Fluorescent internal lamp	0.5

Table. 1 Value of A

Wall colour	Value of B
Deep black	0
Too dark	0.4
Middle	0.8
Too bright	1.2
Pure white	1.6

Table. 2 Value of B

5. If the value of L found at step 4 is not within $50 \leq L \leq 150$, move the set to the illumination or weaken the source of lights so that the value of L is within $50 \leq L \leq 150$.
6. Find the output voltage with the value of L refer to Table. 3. When the fraction of L is less than 4, the fraction round or the fraction is over 5, rounds up.

L	50	60	70	80	90	100	110	120	130	140	150
V	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2

Table. 3 Correspondence to illumination and output voltage [V]

7. Observe the voltage at the plus side of C774 (Use the minus side of C774 for ground).
8. Turn on power source of the set.
9. Adjust VR7W0 so that the value of digital voltmeter equal to the output voltage ±0.3V (as Table. 3).

Calculation example of brightness(L)
For example, when performing this adjustment in the room shown in Fig. 2, the method which find the value of L is following.

$$L_1 = \frac{11 \cdot A \cdot X \cdot W}{Y^2} = \frac{11 \cdot 1 \cdot 1.5 \cdot 40}{2^2} = \frac{660}{8} = 82.5$$

$$L_2 = \frac{A \cdot B \cdot W}{Z^2} = \frac{1 \cdot 0.6 \cdot 40}{2^2} = \frac{32}{4} = 8$$

$$L = L_1 + L_2 = 82.5 + 8 = 90.5 = 90$$

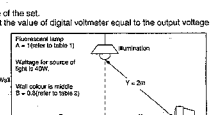


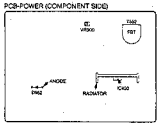
Fig. 2

[Power Circuit] 14. Power Oscillation Frequency	Adjustment purpose: Set the oscillation frequency of the switching constant voltage circuit. Symptom when incorrectly adjusted: Some horizontal stripes appear on the upper or lower portion of the screen.

Measuring instrument	Frequency counter
Test point	anode of D952
EXT trigger	—
Measurement range	—
Input signal	VIDEO signal (colour bar)
Input terminal	VIDEO IN terminal

*Preheat the set for fifteen minutes or more.
*All the electrical adjustments should be completed before this adjustment.
1. Supply a VIDEO signal (colour bar).
2. Press "OPTIMUM" button on the remote hand unit.
3. Observe the frequency at the anode of D952. (use a radiator of IC450 for ground.)
4. Adjust VR600 so that the frequency is 31.25±0.2kHz.

PCB-POWER (COMPONENT SIDE)



PARTS LIST

MODEL : CT-29AS1EDT/CT-29AS1ESDT/CT-29AS1EST/CT-29AS1EST(Y)

In order to expedite delivery of replacement part orders.
Specify : 1.Model number/Serial number
2.Part number and Description
3.Quantity
Unless full information is supplied,delay in execution of orders will result.
⚠ : Critical components

MARK	B	C	D	F	G	J	K
TOLERANCE (%)	±0.1	±0.25	±0.5	±1	±2	±5	±10

MARK	M	N	V	X	Z	P	Q
TOLERANCE (%)	±20	±30	+10 -10	+40 -20	+80 -20	+100 -0	+30 -10

MARK	B	C	D	F	G
TOLERANCE (pF)	±0.1	±0.25	±0.5	±1	±2

ABBREVIATION
[EDT] : CT-29AS1EDT
[ESDT] : CT-29AS1ESDT
[EST] : CT-29AS1EST
[ESTY] : CT-29AS1EST(Y)

[EDT] : CT-29AS1EDT [ESDT] : CT-29AS1ESDT [EST] : CT-29AS1EST [ESTY] : CT-29AS1ESTY)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
		TUBES	
⚠ V 271	255P941000	CRT ASSY	A56EHX030X101
		INTEGRATED CIRCUITS	
IC101	270P2080H0	IC	TDA5815
IC201	270P2060H0	IC	MC44002P
IC202	270P2050H0	IC	TDA1870
IC2J1	273P3707D0	IC	CXA1545AS
IC2J2	272P0050H0	IC	AN5620
IC301	270P2090H0	IC	M5P3410
IC302	270P2030H0	IC	LA7808
IC303	274P2080H0	IC	MN1380-R
IC360	272P2480D0	IC	TA8200AH [ESDT]
IC361	272P2450D0	IC	TA8200AH
IC3A1	272P2420H0	IC	TA8776N
IC3A2	270P1240P0	IC	AN16805F
IC3101	272P2680H0	IC	M51132L [ESDT]
IC3102	274P2680H0	IC	LV1010N [ESDT]
IC469	272P2580D0	IC	TDA8178S
IC630	273P4080H0	IC	TEA2031A
IC601	270P2690H0	IC	MC44140P
IC700	274P2680H0	IC	M37203MC-A65SP
IC701	274P2080E0	IC	MN1380-T
IC702	283P434D00	IC	XI4004P
IC705	272P2630H0	IC	NJM78L06A
IC7601	274P2670D0	IC	PC853C05AP
IC7602	274P2710H0	IC	SA4538P
IC7603	274P1710H0	IC	ST24C02AB1
IC7604	272P4900H0	IC	NJM2230RL
IC901	270P2020H0	IC	BA6229
IC900	272P3140H0	IC	TFA2251
IC951	267P0700H0	IC	SI-3170C
IC952	267P0780D0	IC	SI-3050C
		TRANSISTORS	
Q 112	260P543000	TRANSISTOR	2SC501-R
Q 121	260P544040	TRANSISTOR	JA101-R
Q 131	260P543080	TRANSISTOR	2SC501-R
Q 132	260P543080	TRANSISTOR	2SC501-R
Q 171	260P543000	TRANSISTOR	2SC501-R
Q 1A1	260P544040	TRANSISTOR	JA101-R
Q 1A2	260P543000	TRANSISTOR	2SC501-R
Q 231	260P548200	TRANSISTOR	2SC501-R
Q 231	260P542000	TRANSISTOR	2SC501-R [EDT,ESDT,EST]
Q 232	260P544040	TRANSISTOR	JA101-R
Q 233	260P542000	TRANSISTOR	2SC501-R [EDT,ESDT,EST]
Q 261	260P543000	TRANSISTOR	2SC501-R
Q 262	260P544040	TRANSISTOR	JA101-R
Q 263	260P543080	TRANSISTOR	2SC501-R
Q 264	260P548200	TRANSISTOR	2SC501-R
Q 291	260P587000	TRANSISTOR	2SC2236-Y
Q 2K2	260P544040	TRANSISTOR	JA101-R
Q 2K3	260P543020	TRANSISTOR	2SC501-R
Q 2L1	260P543000	TRANSISTOR	2SC501-R
Q 2L2	260P543020	TRANSISTOR	2SC501-R

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
Q 2L5	260P548030	TRANSISTOR	2SC501-R
Q 2P1	260P543030	TRANSISTOR	2SC501-R
Q 2U1	260P543030	TRANSISTOR	2SC501-R
Q 2Y1	260P544040	TRANSISTOR	JA101-R
Q 350	260P549300	TRANSISTOR	2SC501-R
Q 351	260P543000	TRANSISTOR	2SC501-R
Q 352	260P544040	TRANSISTOR	JA101-R
Q 391	260P544040	TRANSISTOR	JA101-R
Q 3Y2	260P543030	TRANSISTOR	2SC501-R
Q 3001	260P543030	TRANSISTOR	2SC501-R [ESDT]
Q 3002	260P544040	TRANSISTOR	JA101-R [ESDT]
Q 3011	260P543030	TRANSISTOR	2SC501-R [ESDT]
Q 3012	260P544040	TRANSISTOR	JA101-R [ESDT]
Q 3021	260P543030	TRANSISTOR	2SC501-R [ESDT]
Q 3022	260P544040	TRANSISTOR	JA101-R [ESDT]
Q 3101	260P543030	TRANSISTOR	2SC501-R
Q 3111	260P543030	TRANSISTOR	2SC501-R
Q 3121	260P544040	TRANSISTOR	JA101-R
Q 3122	260P543000	TRANSISTOR	2SC501-R
Q 450	260P628020	TRANSISTOR	2SC2166-Y
Q 451	260P543030	TRANSISTOR	2SC501-R
Q 501	260P543020	TRANSISTOR	2SC501-R
Q 502	260P833010	TRANSISTOR	DTC124ES
Q 503	260P832010	TRANSISTOR	DTC124ES
Q 504	260P832010	TRANSISTOR	DTC124ES
Q 509	260P543030	TRANSISTOR	2SC501-R
Q 521	260P543030	TRANSISTOR	2SC501-R
Q 522	260P544040	TRANSISTOR	JA101-R
Q 523	260P544040	TRANSISTOR	JA101-R
Q 524	260P544040	TRANSISTOR	JA101-R
Q 525	260P544040	TRANSISTOR	JA101-R
Q 526	260P544040	TRANSISTOR	JA101-R
Q 527	260P543030	TRANSISTOR	2SC501-R
Q 528	260P543030	TRANSISTOR	2SC501-R
Q 529	260P544040	TRANSISTOR	JA101-R
Q 553	260P422010	TRANSISTOR	2SC2482
Q 551	260P563030	TRANSISTOR	2SD1858
Q 600	260P544040	TRANSISTOR	JA101-R
Q 601	260P543030	TRANSISTOR	2SC501-R
Q 602	260P574020	TRANSISTOR	2SD1264A-P
Q 603	260P573020	TRANSISTOR	2SB940A-P
Q 604	260P564000	TRANSISTOR	2SC2058S-Q
Q 605	260P564030	TRANSISTOR	2SC2058S-Q
Q 606	260P564030	TRANSISTOR	2SC2058S-Q
Q 607	260P544040	TRANSISTOR	JA101-R
Q 608	260P543030	TRANSISTOR	2SC501-R
Q 609	260P543000	TRANSISTOR	2SC501-R
Q 610	260P543030	TRANSISTOR	2SC501-R
Q 611	260P543030	TRANSISTOR	2SC501-R
Q 612	260P543030	TRANSISTOR	2SC501-R
Q 651	260P425060	TRANSISTOR	2SC5884-LMJ
Q 652	260P425060	TRANSISTOR	2SC5884-LMJ
Q 653	260P425060	TRANSISTOR	2SC5884-LMJ
Q 654	260P544040	TRANSISTOR	JA101-R
Q 655	260P564030	TRANSISTOR	2SC2058S-Q
Q 656	260P564030	TRANSISTOR	2SC2058S-Q

[EDT] : CT-29AS1EDT [ESDT] : CT-29AS1ESDT [EST] : CT-29AS1EST [ESTY] : CT-29AS1ESTY)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
Q 657	260P564030	TRANSISTOR	2SC2058S-Q
Q 658	260P422010	TRANSISTOR	2SC2482
Q 659	260P422010	TRANSISTOR	2SC2482
Q 660	260P422010	TRANSISTOR	2SC2482
Q 661	260P544010	TRANSISTOR	BF423
Q 662	260P544010	TRANSISTOR	BF423
Q 663	260P544010	TRANSISTOR	BF423
Q 665	260P543030	TRANSISTOR	2SC501-R
Q 666	260P544040	TRANSISTOR	JA101-R
Q 667	260P543080	TRANSISTOR	2SC501-R
Q 6A1	260P543030	TRANSISTOR	2SC501-R
Q 6A2	260P543030	TRANSISTOR	2SC501-R
Q 6A3	260P544040	TRANSISTOR	JA101-R
Q 6A4	260P543030	TRANSISTOR	2SC501-R
Q 6A5	260P543030	TRANSISTOR	2SC501-R
Q 6A6	260P543030	TRANSISTOR	2SC501-R
Q 6A7	260P543030	TRANSISTOR	2SC501-R
Q 6A8	260P544040	TRANSISTOR	JA101-R
Q 6A9	260P544040	TRANSISTOR	JA101-R
Q 6H1	260P543020	TRANSISTOR	2SC501-R
Q 6H2	260P543020	TRANSISTOR	2SC501-R
Q 6H3	260P543080	TRANSISTOR	2SC501-R
Q 6H4	260P544040	TRANSISTOR	JA101-R
Q 6H5	260P543050	TRANSISTOR	2SC501-R
Q 6H6	260P544040	TRANSISTOR	JA101-R
Q 6J1	260P543030	TRANSISTOR	2SC501-R
Q 6J2	260P543030	TRANSISTOR	2SC501-R
Q 713	260P543030	TRANSISTOR	2SC501-R
Q 723	260P543030	TRANSISTOR	2SC501-R
Q 724	260P543030	TRANSISTOR	2SC501-R
Q 725	260P543030	TRANSISTOR	2SC501-R
Q 726	260P543030	TRANSISTOR	2SC501-R
Q 728	260P543030	TRANSISTOR	2SC501-R
Q 746	260P543030	TRANSISTOR	2SC501-R
Q 747	260P543030	TRANSISTOR	2SC501-R
Q 748	260P543030	TRANSISTOR	2SC501-R
Q 749	260P543030	TRANSISTOR	2SC501-R
Q 757	260P543030	TRANSISTOR	2SC501-R
Q 759	260P543030	TRANSISTOR	2SC501-R
Q 760	260P543030	TRANSISTOR	2SC501-R
Q 761	260P543030	TRANSISTOR	2SC501-R
Q 762	260P543030	TRANSISTOR	2SC501-R
Q 7A0	260P544040	TRANSISTOR	JA101-R
Q 7U1	260P544040	TRANSISTOR	JA101-R
Q 7W0	260P564030	TRANSISTOR	2SC2058S-Q
Q 7004	260P564030	TRANSISTOR	2SC2058S-Q
Q 7005	260P564030	TRANSISTOR	2SC2058S-Q
Q 7006	260P543000	TRANSISTOR	2SC501-R
Q 7007	260P564030	TRANSISTOR	2SC2058S-Q
Q 800	260P427020	TRANSISTOR	2SC1626-Y
Q 900	260P797010	TRANSISTOR	2SD2349
Q 901	260P543030	TRANSISTOR	2SC501-R
Q 950	260P543030	TRANSISTOR	2SC501-R
Q 954	260P543000	TRANSISTOR	2SC501-R
Q 955	260P668010	TRANSISTOR	2SB1135-R,S
Q 956	260P668010	TRANSISTOR	2SB1135-R,S
Q 957	260P544040	TRANSISTOR	JA101-R
Q 959	260P543030	TRANSISTOR	2SC501-R
Q 960	260P632010	TRANSISTOR	DTC124ES
Q 961	260P632010	TRANSISTOR	DTC124ES
		DIODES	
D 121	264P387010	DIODE	1N4148
D 122	264P387010	DIODE	1N4148
D 131	264P486010	DIODE	MA856
D 132	264P486010	DIODE	MA856
D 133	264P387010	DIODE	1N4148
D 151	264P484070	DIODE	RD6.2FB2
D 230	264P484070	DIODE	RD6.2FB2
D 231	264P870010	DIODE	1N4148
D 232	264P870010	DIODE	1N4148
D 253	264P387010	DIODE	1N4148
D 254	264P870010	DIODE	1N4148
D 281	264P870010	DIODE	1N4148
D 2G1	264P870010	DIODE	1N4148
D 2G2	264P486060	DIODE	RD16FB2
D 2G3	264P911010	DIODE	RU1S30G
D 2J0	264P485070	DIODE	RD7.5FB3
D 2J1	264P485070	DIODE	RD7.5FB3
D 2J5	264P485070	DIODE	RD7.5FB3
D 2J7	264P485070	DIODE	RD7.5FB3
D 2J8	264P485070	DIODE	RD7.5FB3
D 2J9	264P485070	DIODE	RD7.5FB3
D 2K1	264P485070	DIODE	RD7.5FB3
D 2K2	264P485070	DIODE	RD7.5FB3
D 2K3	264P485070	DIODE	RD7.5FB3
D 2L0	264P485070	DIODE	RD7.5FB3
D 2L1	264P485070	DIODE	RD7.5FB3
D 2P1	264P870010	DIODE	1N4148
D 2P2	264P870010	DIODE	1N4148
D 2T0	264P870010	DIODE	1N4148
D 2Y1	264P870010	DIODE	1N4148
D 2Y2	264P870010	DIODE	1N4148
D 353	264P374C00	DIODE	IN4003D
D 354	264P374C00	DIODE	IN4003D
D 355	264P374C00	DIODE	IN4003D
D 356	264P374C00	DIODE	IN4003D
D 357	264P374C00	DIODE	IN4003D [ESDT]
D 358	264P374C00	DIODE	IN4003D [ESDT]
D 360	264P870010	DIODE	1N4148 [ESDT]
D 381	264P870010	DIODE	1N4148
D 450	264P374C00	DIODE	IN4003D
D 503	264P870010	DIODE	1N4148
D 504	264P870010	DIODE	1N4148
D 523	264P870010	DIODE	1N4148
D 569	264P315C00	DIODE	BYD33K FORMING
D 551	264P870010	DIODE	BYW96E
D 582	264P871010	DIODE	BYD33G
D 583	264P870010	DIODE	1N4148
D 584	264P870010	DIODE	1N4148
D 585	264P484070	DIODE	RD6.8FB2
D 588	264P870010	DIODE	1N4148
D 597	264P871010	DIODE	BYD33G

[EDT] : CT-29AS1EDT [ESDT] : CT-29AS1ESDT [EST] : CT-29AS1EST [ESTY] : CT-29AS1EST(Y)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
D 558	264P4840A0	DIODE	RD5.6FB3
D 559	264P0310H0	DIODE	BYD33D
D 560	264P4810G0	DIODE	RD3.9FB1
D 561	264P0310H0	DIODE	BYD33D
D 562	264P4930D0	DIODE	RD39FB2
D 600	264P0700J0	DIODE	1N4148
D 601	264P3740D0	DIODE	RN402SD
D 602	264P3740D0	DIODE	RN402SD
D 603	264P0700J0	DIODE	1N4148
D 604	264P0700J0	DIODE	1N4148
D 605	264P0700J0	DIODE	1N4148
D 651	264P0700J0	DIODE	1N4148
D 652	264P0700J0	DIODE	1N4148
D 653	264P0700J0	DIODE	1N4148
D 654	264P0710J0	DIODE	BYD33G
D 655	264P3740D0	DIODE	RN402SD
D 656	264P3740D0	DIODE	RN402SD
D 657	264P3740D0	DIODE	RN402SD
D 840	264P0700J0	DIODE	1N4148
D 841	264P0700J0	DIODE	1N4148
D 842	264P0700J0	DIODE	1N4148
D 851	264P4850T0	DIODE	RD7.5FB3
D EP1	264P3740H0	DIODE	1N4148
D EP2	264P3740J0	DIODE	1N4148
D 700	264P3740J0	DIODE	1N4148
D 701	264P4840Q0	DIODE	RD5.6FB2
D 702	264P3740J0	DIODE	1N4148
D 703	264P4850T0	DIODE	RD7.5FB3
D 704	264P4890Q0	DIODE	RD7.5FB3
D 705	264P3740H0	DIODE	1N4148
D 706	264P3740H0	DIODE	1N4148
D 708	264P3740J0	DIODE	1N4148
D 709	264P3740J0	DIODE	1N4148
D 710	264P4870G0	DIODE	RD11FB3
D TU0	264P6340Q0	LIGHT EMITTING DIODE	SML1216W-C,D
D TW0	264P3740J0	DIODE	1N4148
D 7001	264P0700J0	DIODE	1N4148
D 7003	264P3740J0	DIODE	1N4148
D 7016	264P3740H0	DIODE	1N4148
D 801	264P3740Q0	DIODE	RN402SD
D 802	264P3740Q0	DIODE	RN402SD
D 803	264P4840Q0	DIODE	RD5.6FB2
D 804	264P4860Q0	DIODE	RD15FB1
D 900	264P0750H0	DIODE	BYW56
D 901	264P3750H0	DIODE	BYW56
D 902	264P3750H0	DIODE	BYW56
D 903	264P3750H0	DIODE	BYW56
D 904	264P4810G0	DIODE	RD3.9FB1
D 905	264P4810G0	DIODE	RD3.9FB1
D 906	264P0720H0	DIODE	BYW96E
D 907	264P4710H0	DIODE	BYD33D
D 908	264P3700H0	DIODE	1N4148
D 950	264P3580H0	DIODE	RU 4AM
D 951	264P3580H0	DIODE	RU 4AM
D 952	264P3580H0	DIODE	RU 4AM
D 953	264P3580H0	DIODE	RU 4AM

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
D 954	264P7080H0	DIODE	RU 4AM
D 955	264P3700H0	DIODE	1N4148
D 956	264P3700J0	DIODE	1N4148
D 957	264P3700J0	DIODE	1N4148
D 958	264P3700J0	DIODE	1N4148
D 959	264P3580J0	DIODE	RU 4AM
D 961	264P3740Q0	DIODE	RN402SD
D 962	264P4840Q0	DIODE	RD5.6FB3
D 963	264P3700J0	DIODE	1N4148
D 964	264P3700J0	DIODE	1N4148
D 965	264P3700J0	DIODE	1N4148
D 966	264P4700B0	DIODE	EQA01-32C
D 967	264P3700J0	DIODE	1N4148
D 968	264P3700J0	DIODE	1N4148
		OTHER SEMICONDUCTORS	
△ PR501	265P3470Q0	POSITIVE THERMISTOR	PTH-BG180M290
△ PR902	265P5470D0	POSITIVE THERMISTOR	PTH-BG180M290
		FILTERS	
CF111	259P2640Q0	CERAMIC TRAP	TPS6.5MW4
CF112	259P2650A0	CERAMIC TRAP	TPS6.5MB
CF001	259P1180T0	CERAMIC RESONATOR	CST8.00MTW [ESDT]
CF701	259P1180T0	CERAMIC RESONATOR	CST8.00MTW
SF101	259P1440Z0	SAW FILTER	OFWK2365M
SF131	259P1450Z0	SAW FILTER	OFWK3465M
		DELAY LINES	
DL231	337P1500Q0	DELAY LINE	100NS
		COILS	
△ L101	408B1701E0	DEGAUSSING COIL	0.95Ω+MJK
L 110	352P1750B0	VIF COIL	AFT
L 111	352C1611D0	PEAKING COIL	10μH-K
L 121	352C1210S0	PEAKING COIL	10μH-K
L 130	352C1210E0	PEAKING COIL	10μH-K
L 131	352C1210G0	PEAKING COIL	82μH-K
L 152	352C1210E0	PEAKING COIL	10μH-K
L 171	352C1210E0	PEAKING COIL	10μH-K
L 1A1	352C1060Y0	PEAKING COIL	1000μH-J
L 202	352C1200W0	PEAKING COIL	4.7μH-K
L 203	352C1200T0	PEAKING COIL	1.0μH-M
L 231	352C1200X0	PEAKING COIL	1.0μH-M
L 251	352C1200X0	PEAKING COIL	1.0μH-M
L 261	352C1200X0	PEAKING COIL	1.0μH-M
L 3F1	352C1200X0	PEAKING COIL	1.0μH-M
L 3J0	352C1200Y0	PEAKING COIL	1.0μH-M
L 3J1	352C1200X0	PEAKING COIL	1.0μH-M
L 2J1	352C1200X0	PEAKING COIL	1.0μH-M
L 2N1	352C1210K0	PEAKING COIL	1.0μH-M [EDT,ESDT,EST]
L 2V1	352C1210T0	PEAKING COIL	1.0μH-M
L 301	352C1200W0	PEAKING COIL	1.0μH-M
L 302	352C1200V0	PEAKING COIL	1.0μH-M
L 303	352C1200V0	PEAKING COIL	1.0μH-M
L 350	411P0010T0	LEAD FERRITE	BF60T [ESDT]

[EDT] : CT-29AS1EDT [ESDT] : CT-29AS1ESDT [EST] : CT-29AS1EST [ESTY] : CT-29AS1EST(Y)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
L 351	411P0010T0	LEAD FERRITE	BF60T [ESDT]
L 352	352C1200T0	PEAKING COIL	3.3μH-K
L 353	352C1200T0	PEAKING COIL	3.3μH-K
L 3A1	352C1200S0	PEAKING COIL	2.2μH-MK
L 342	352C1200S0	PEAKING COIL	2.2μH-MK
L 3J0	352C1200T0	PEAKING COIL	3.3μH-K
L 3J1	352C1200T0	PEAKING COIL	3.3μH-K
L 322	352C1200T0	PEAKING COIL	3.3μH-K
L 3J3	352C1200T0	PEAKING COIL	3.3μH-K
L 3J4	352C1200T0	PEAKING COIL	3.3μH-K
L 3J5	352C1200T0	PEAKING COIL	3.3μH-K
L 3J6	352C1200T0	PEAKING COIL	3.3μH-K
L 3J7	352C1200T0	PEAKING COIL	3.3μH-K
L 3J8	352C1200T0	PEAKING COIL	3.3μH-K
L 3J9	352C1200T0	PEAKING COIL	3.3μH-K
L 3V1	352C1210D0	PEAKING COIL	10μH-K
L 372	352C1210Q0	PEAKING COIL	10μH-K
L 3V3	352C1210S0	PEAKING COIL	10μH-K
L 3V4	352C1200T0	PEAKING COIL	3.3μH-K
L 3V5	352C1200T0	PEAKING COIL	3.3μH-K
L 3V6	352C1200T0	PEAKING COIL	22μH-K
L 3V7	352C1210T0	PEAKING COIL	22μH-K
L 3V8	352C1210S0	PEAKING COIL	10μH-K
L 3001	352C1210S0	PEAKING COIL	2.2μH-MK [ESDT]
L 3011	352C1200S0	PEAKING COIL	2.2μH-MK [ESDT]
L 400	411P0010T0	LEAD FERRITE	BF60T
L 521	352C1210T0	PEAKING COIL	1.0μH-M
L 651	3210S30010	RF COIL	1.0μH-K
L 652	411D0090Z0	FERRITE CORE FILTER	
L 653	459P7600H0	CHOKE COIL	15MHz
L 654	459P7460H0	PCC COIL	1MHz
L 655	333P0150W0	H-LIN.COIL	
L 657	459P0090B0	FILTER COIL	6800μH-J
L 660	411P0010T0	LEAD FERRITE	BF60T
L 801	352C1210T0	PEAKING COIL	22μH-K
L 841	352C1200Y0	PEAKING COIL	1.0μH-M
L E1 1	352C1200Y0	PEAKING COIL	1.0μH-M
L EP1	352C1200Y0	PEAKING COIL	1.0μH-M
L 700	352C1612D0	PEAKING COIL	6.2μH-K
L 702	352C1200Y0	PEAKING COIL	1.0μH-M
L 704	352C1210D0	PEAKING COIL	10μH-K
L 705	352C1200Y0	PEAKING COIL	1.0μH-M
L 706	352C1210Y0	PEAKING COIL	1.0μH-M
L 7001	352C1110S0	PEAKING COIL	10μH-K
L 7002	3210S30010	RF COIL	3.3μH-K
L 7003	352C1200Y0	PEAKING COIL	1.0μH-M
L 7004	352C1200Y0	PEAKING COIL	1.0μH-M
L 900	411P0010T0	LEAD FERRITE	BF60T
L 901	411P0010Y0	LEAD FERRITE	BF60T
L 902	3210T00050	RF COIL	2.2μH-K
L 903	3210T00050	RF COIL	2.2μH-K
L 660	409P9740J0	FILTER COIL	
L 951	409P9740S0	FILTER COIL	
L 952	352S0590H0	PEAKING COIL	390μH-K
L 953	3210T00100	RF COIL	33μH-K
L 990	351P0110D0	LINE FILTER	7000MHz

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
L 991	351P0470D0	LINE FILTER	2500MHz
L 994	351P0230T0	LINE FILTER	252YR0-01
		TRANSFORMERS	
T 551	3587071D10	H.DRIVE	
△ T 552	3340100007	FLYBACK	(334P2210A0&CAP)
△ T 901	350P5100B0	POWER	
		VARIABLE RESISTORS	
VR3301	127C4810D0	VR-SEMIFIXED	1/5W B100K~ [ESDT]
VRR700	127C3810Y0	VR-SEMIFIXED	1/5W B50KΩ-M
VR900	127C3810Y0	VR-SEMIFIXED	1/5W B50KΩ-M
		RESISTORS	
△ R 552	103P3960J0	FUSE	1/2W 2.2Ω-J
△ R 353	103P3960H0	FUSE	1/2W 2.2Ω-J
△ R 901	103P3960H0	FUSE	1/2W 2.2Ω-J [ESDT]
△ R 902	103P3940H0	FUSE	1/2W 2.2Ω-J [ESDT]
△ R 399	103P3701K0	FUSE	1/4W 10Ω-J
R 553	109307T010	CEMENT WIRE	15W 4.7Ω-K
R 551	102P2430Q0	CEMENT METAL	5W 3.9kΩ-KU
△ R 555	103P4420D0	FUSE METAL	1W 560Ω-KU
△ R 556	103P3970H0	FUSE	1/2W 0.82Ω-J
△ R 561	103P3970F0	FUSE	1/2W 0.82Ω-J
△ R 552	103P3960H0	FUSE	1/2W 2.2Ω-J
△ R 609	103P3701K0	FUSE	1/4W 10Ω-J
△ R 612	103P3920G0	FUSE	1/2W 1kΩ-J
△ R 614	103P3701K0	FUSE	1/4W 10Ω-J
△ R 615	103P3701K0	FUSE	1/4W 10Ω-J
△ R 671	103P4360H0	FUSE METAL	2W 1.2kΩ-KU
△ R 675	103P3720G0	FUSE	1/4W 1kΩ-J
△ R 676	103P3720G0	FUSE	1/4W 1kΩ-J
△ R 677	103P3970G0	FUSE	1/4W 1kΩ-J
△ R 694	103P3920G0	FUSE	1/2W 1kΩ-J
R 696	103P3701K0	FUSE	1/4W 10Ω-J
R 911	109307S060	CEMENT WIRE	10W 1kΩ-J
△ R 919	1050021G20	COMPOSITION	1/2W 6.8MΩ-K
R 920	1050201G20	COMPOSITION	1/2W 6.8MΩ-K
R 992	109307T010	CEMENT WIRE	15W 4.7Ω-K
		CAPACITORS AND TRIMMERS	
C 450	1837091G50	CM-PP	200V 0.1μF-J
C 562	1859P1H20	CM-P	200V 0.047μF-J
C 906	1850S66G90	ELECTROLYTIC-C	400V 330μF-M
△ C 916	1859P0420	C-CERAMIC-AC	ACT4K E3300pF-M
C 990	1859P1S0G0	C-M-P-AC	AC250V 0.22μF-M
△ C 991	1859P1S2G0	C-M-P-AC	AC250V 0.22μF-M
CRSM1	1499P2080H	CR-MULTIPLE	470PF/33.9μF-K
		SWITCHES	
S 700	430P0960H0	KEY BOARD SWITCH	1-1 L=3.95 S
S 7X1	430P0960Y0	KEY BOARD SWITCH	6KYE L=8.35
S 991	430C0480J0	PUSH SWITCH	AC250V 5A 90A
		MISCELLANEOUS	
△ F 991	2850091H00	FUSE	T3.15AH 250V [EDT,ESDT,EST]
△ F 991	2830047D40	FUSE	T2A [ESTY]

[EDT] : CT-29AS1EDT [ESDT] : CT-29AS1ESDT [EST] : CT-29AS1EST [ESTY] : CT-29AS1EST(Y)

SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
J 2J1		449C121010	SOCKET DIN 5PIN
J 2X1		449C280010	SOCKET DIN MINI
J 350		451C125020	JACK
J 3S1		440C177010	TERMINAL SPEAKER
J 3J1		451C177010	JACK PIN
J 3X1		449C289010	PIN JACK BOARD
J 3X2		451C175010	JACK MICROPHONE
△ J 901		445C135010	CRT SOCKET
△ K 901		287P048030	RELAY POWER
PC7W0		288P083020	COS-CELL8
△ PC951		288P089010	PHOTO COUPLER
TU101		295P400040	TUNER
X 301		289P292010	CRYSTAL RESONATOR
X 6A1		289P142C20	CRYSTAL RESONATOR
X 6A2		289P142C20	CRYSTAL RESONATOR
X 7002		289P157C20	CRYSTAL RESONATOR
△ Z 550		299P030C50	PROTECTOR
Z 7Y0		939P999C60	PREAMP UNIT
△ Z 800		299P090C50	PROTECTOR
△ Z 950		299P031K80	PROTECTOR
△ Z 951		299P231K80	PROTECTOR
△ Z 952		299P261C80	PROTECTOR
△ Z 953		299P261K80	PROTECTOR
△ Z 954		299P261C60	PROTECTOR
			PRINTED CIRCUIT BOARD ASSY'S
△		920C573001	AV-4/HP PCB ASSY
△		930C315001	DOLBY-S PCB ASSY
△		930B71C06	POWER PCB ASSY
△		930B71C04	POWER PCB ASSY
△		930B71C03	POWER PCB ASSY
△		930C821001	S-SUB PCB ASSY
△		930B70C08	SIGNAL PCB ASSY
△		930B70C06	SIGNAL PCB ASSY
△		930B70C05	SIGNAL PCB ASSY
△		920C674001	SIM.LED PCB ASSY
△		920C814001	TEXT PCB ASSY
△		920C582001	VMCRT PCB ASSY
			MECHANICAL PARTS
		958D220C30	SCREW
		958D220C40	SCREW
		958D221040	SCREW
		958D221C60	SCREW
		958D211C30	SCREW
			COSMETIC PARTS
△		249C022C70	AC POWER CORD
		941A344C10	BASE ASSY
△		70XC201C30	BACK COVER
△		70XC201C40	BACK COVER
△		70XC201C50	BACK COVER
△		70XC203C30	BACK COVER
		70XC503C40	BUTTON POWER
		750A048C00	FRONT CABINET ASSY
		750A048C10	FRONT CABINET ASSY

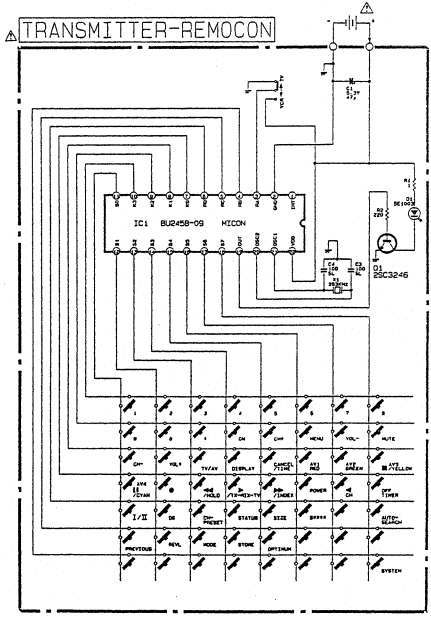
SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
		750A049C40	FRONT CABINET ASSY
		750A049C50	FRONT CABINET ASSY
		750C079C10	DOOR
		761C437C10	DOOR CATCH
SP591		926P221C50	SPEAKER SYSTEM
SP592		926P221C50	SPEAKER SYSTEM
		539B011C10	GEAR UNIT
			PACKING PARTS AND ACCESSORY
		244C079C10	CABLE
		820A317C10	PACKING CUSHION
		820B756C10	PACKING CUSHION
△		872C086C60	INSTRUCTION BOOK
△		872C086C80	INSTRUCTION BOOK
		831C263C10	PACKING BAG
		831C661C00	PACKING BAG
		801C257C00	PACKING CASE
		801C257C40	PACKING CASE
△		296P023C60	REMOTE HAND UNIT
△		296P023C60	REMOTE HAND UNIT

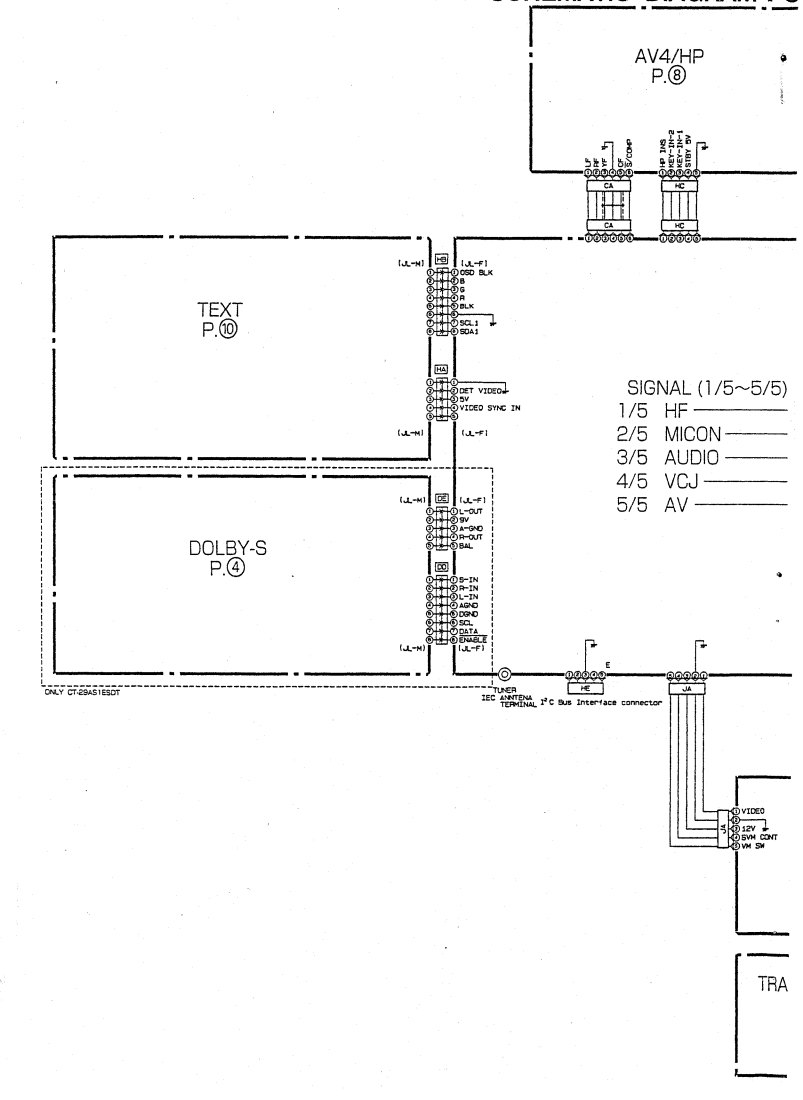
SYMBOL No.	PARTS No.	PARTS NAME	DESCRIPTION
		750A048-30(1S)	
		750A049-30(1S)	
		820B756C10	PACKING CUSHION
		872C086C60	INSTRUCTION BOOK
		872C086C80	INSTRUCTION BOOK
		831C661C00	PACKING BAG
		801C257C00	PACKING CASE
		801C257C40	PACKING CASE
		296P023C60	REMOTE HAND UNIT
		296P023C60	REMOTE HAND UNIT

[EDT] : CT-29AS1EDT
[ESDT] : CT-29AS1ESDT
[EST] : CT-29AS1EST
[ESTY] : CT-29AS1EST(Y)
[EDT]
[ESDT]
[EST]
[ESTY]
[EDT,EST]
[ESDT,EST]
[EDT,ESTY]
[ESDT,ESTY]
[EDT,ESDT,EST]
[EDT,ESDT,ESTY]

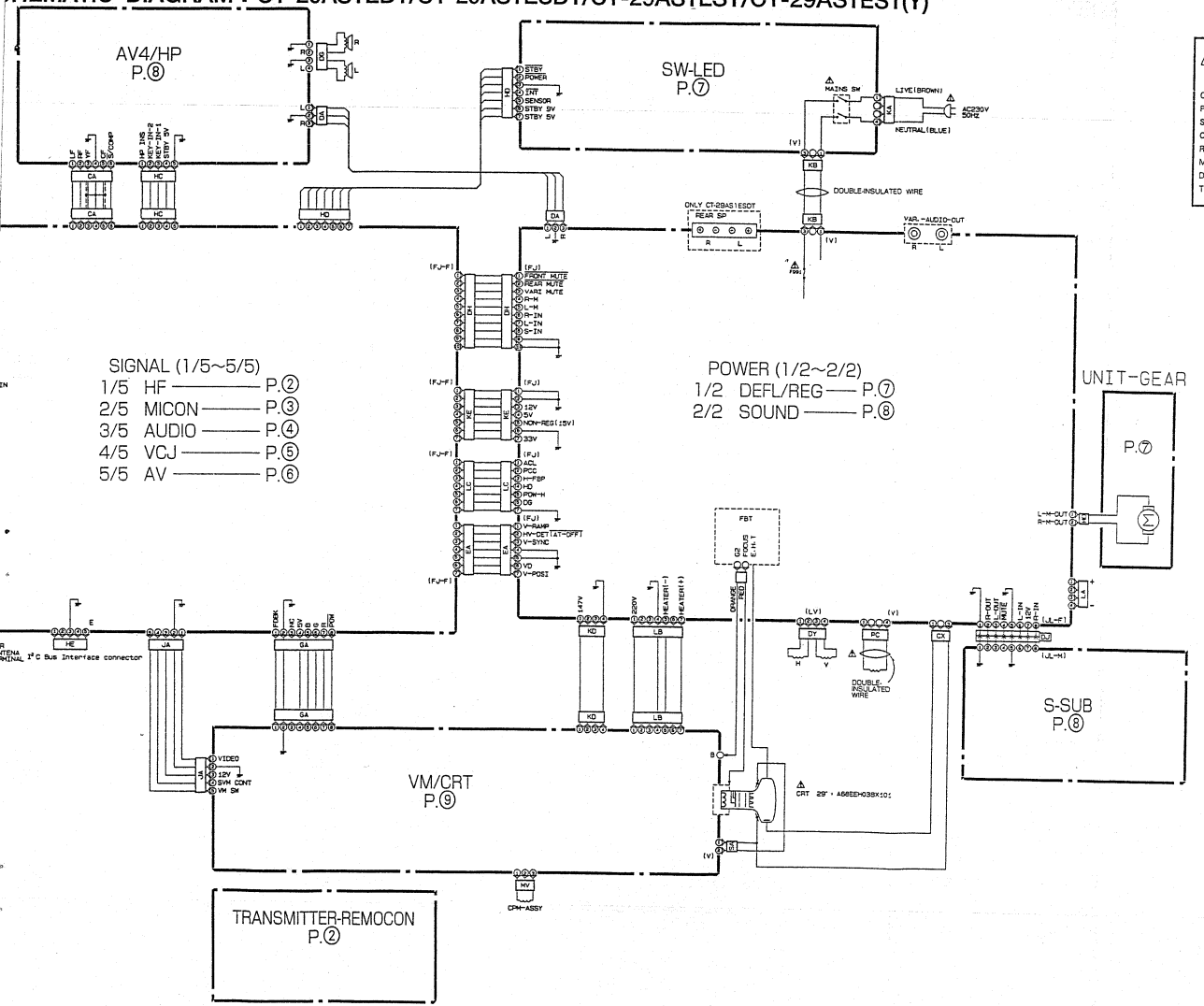
[MEMO]

SYSTEM	#9 NEG/POS	#11 L'/L'
B/G	H	H
I	H	H
D/K	H	H
L(VH/UHF)	L	H
L' (VL)	L	0-2V




AV4/HP
P.⑧
TEXT
P.⑩
DOLBY-S
P.④
SIGNAL (1/5~5/5)
1/5 HF
2/5 MICON
3/5 AUDIO
4/5 VCJ
5/5 AV
OSD BLK
B
G
R
BLK
SCL1
SDA1
DET VIDEO
5V
VIDEO SYNC IN
L-OUT
5V
A-GND
R-OUT
BAL
S-IN
R-IN
L-IN
AGND
DGND
SCL
DATA
ENABLE
TUNER
IEC ANNTENA TERMINAL
I²C Bus Interface connector
VIDEO
12V
SW CONT
VM SW
TRA
ONLY CT-28AS1ESDT

CHEMATIC DIAGRAM : CT-29AS1EDT/CT-29AS1ESDT/CT-29AS1EST/CT-29AS1EST(Y)



SERVICING PRECAUTION

SYMBOLS INDICATE COMPONENTS HAVING SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY AND PERFORMANCE. THERFORE REPLACEMENT OF ANY SAFETY PARTS SHOULD BE IDENTICAL IN VALUE AND CHARACTERISTICS. FOR ACCURACY OF THE REPLACEMENT REFER TO THE PARTS LIST OF SERVICE MANUAL.

DON'T DEGRADE THE SAFETY OF THE RECEIVERS THROUGH IMPROPER SERVICING.

• NOTE

1. DC voltages were measured from points indicated to the circuit ground with a high-Z voltmeter.
2. Waveforms were taken with standard colour bar signal.
3. TP&A, etc. show Test Points.
4. CAPACITORS

Value	Not indicated	PF, for numbers more than 1 μF, for numbers less than 1
Dielectric Strength	Not indicated :50V	
Tolerance	Not indicated ±10%	No Tolerance is indicated for electrolytic capacitors and ±20%
	G ±2% J ±5% K ±10% M ±20%	P +100% −0% Z +80% −20%
		Q +30% −10% T +200% −0%
		C ±0.25PF D ±0.5PF F ±1PF G ±2PF
Sort I: Parts except for chips	Not indicated : Ceramic capacitor (SP) : Polyester capacitor (PP) : Polypropylene film capacitor (ALU) : Aluminus electrolytic capacitor (TF) : Twin film capacitor (SMC) : Semiconductor ceramic capacitor (MP) : Metalized paper (MPP) : Metalized plastic film capacitor (MMP) : Metalized polyester capacitor (PP, PP) : Polyester polypropylene film capacitor (PS) : Styrol capacitor (TAN,ANT) : Tantalum capacitor : Electrolytic capacitor (SP or NP) : Non polarized electrolytic capacitor	
Sort II: Chips	Not indicated : Ceramic capacitor chip : Electrolytic capacitor (SP or NP) : Non polarized electrolytic capacitor chip	
Characteristic (only ceramic capacitor)	Not indicated : F or B(high dielectric percentage) CH,SL,etc. : Temperature compensating types	

5. Resistors

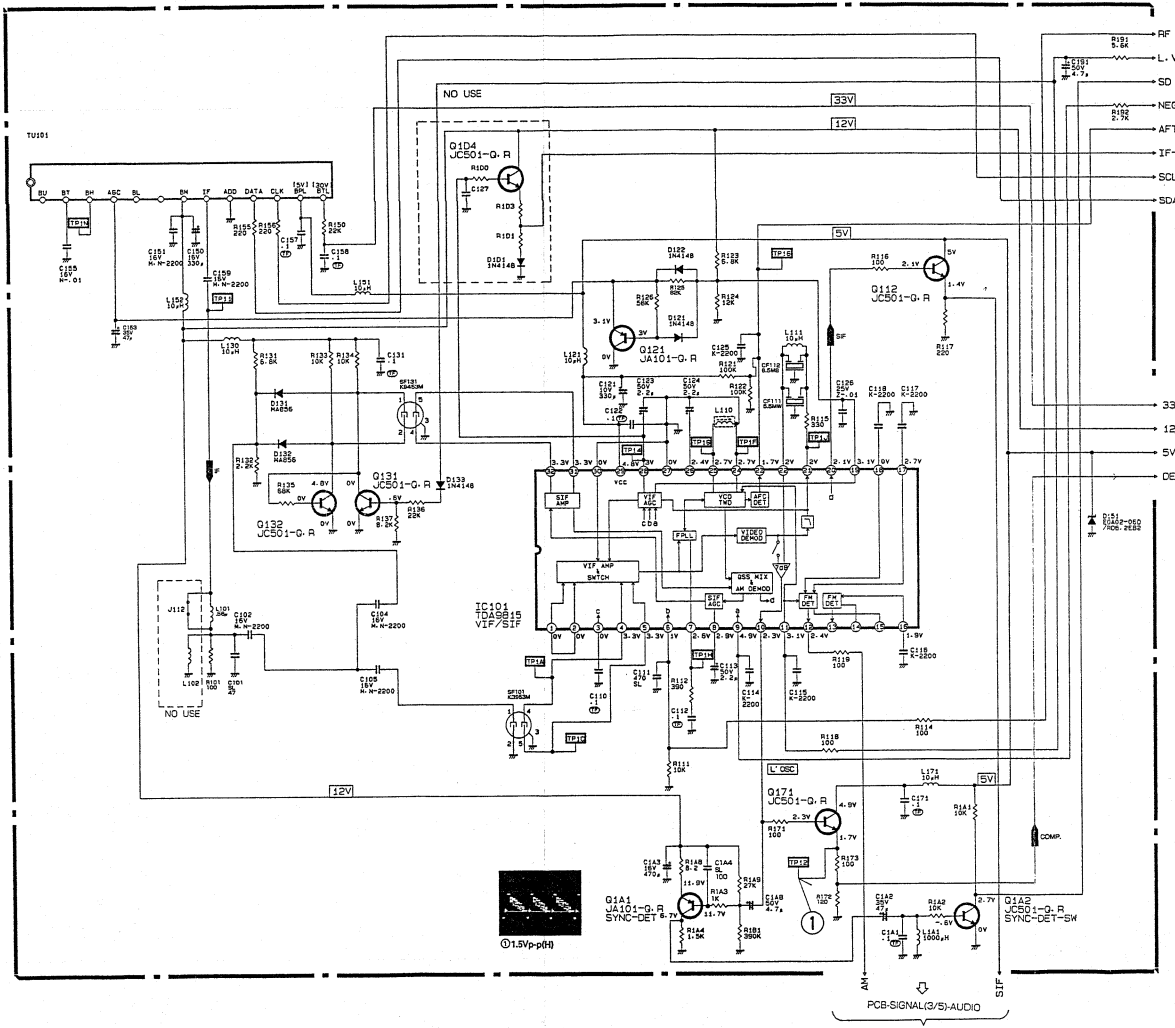
Value	Not indicated = Ω K = kΩ(1000Ω) M = MΩ(1000kΩ)	
Wattage	Parts except for chips	Not indicated = 1/4W or 1/6W
	Chips	Not indicated = 1/10W
Tolerance	Not indicated ±5% D ±0.5% F ±1%	J ±5% K ±10%
Short I: Parts except for chips	Not indicated : Carbon resistor (S) : Fixed composition resistor (MSR) : Metal oxide film resistor(type S) (CC) : Cemented resister (W) : Wire wound resister (M) : Metal film resister (MPC) : Metal plate cermet resister (ML) : Metal liner resister	
Short II: Chip	Not indicated : Chip resistor	

6. This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement.

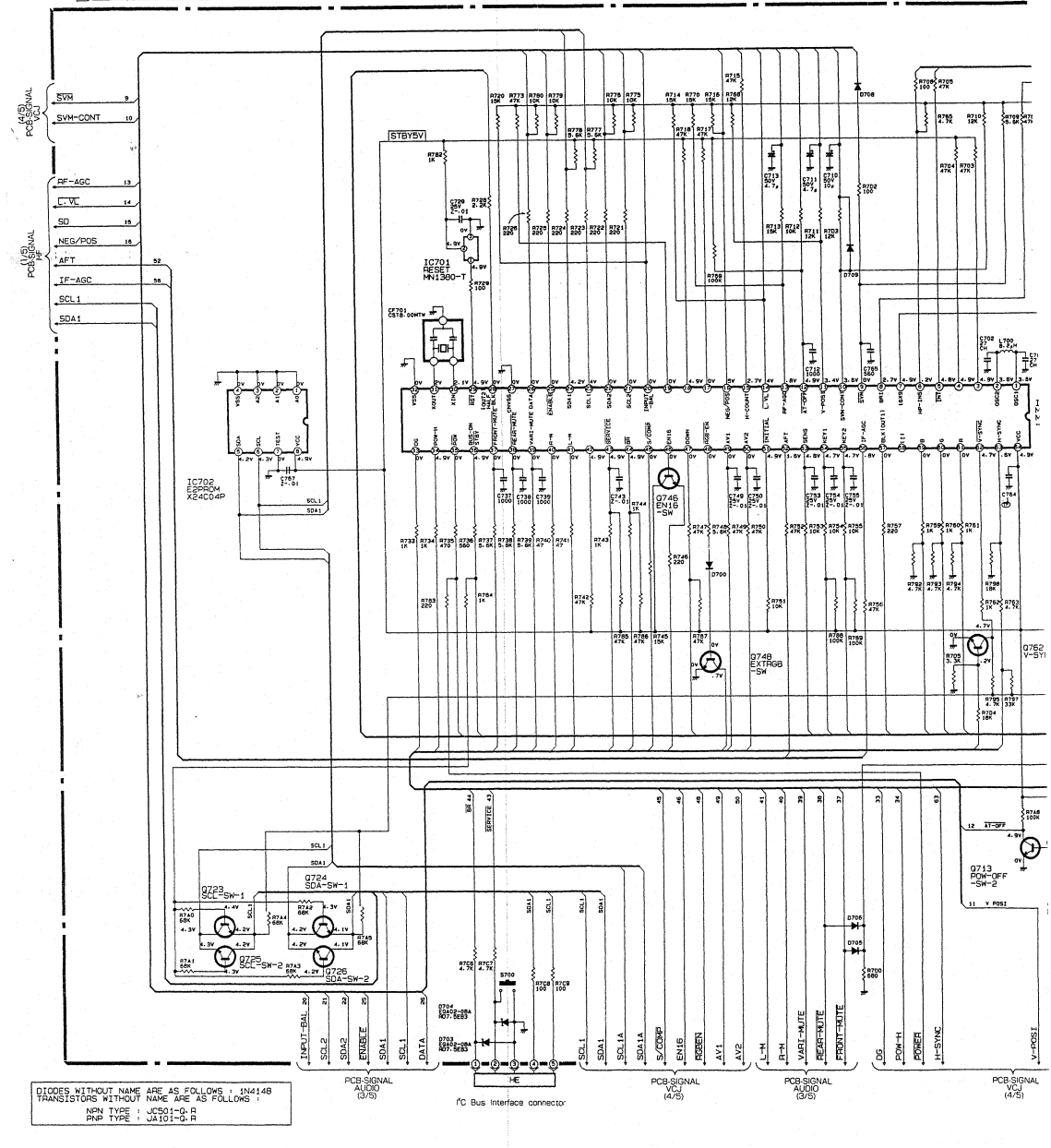
SPECIFIC SYMBOL

Zener Diode	Crystal unit
Varicap	Air Gap
Posistor	Part(resistor) attached on the copper-foil side of PCB
Thermistor	Ceramic filter
Fusible Resistor	

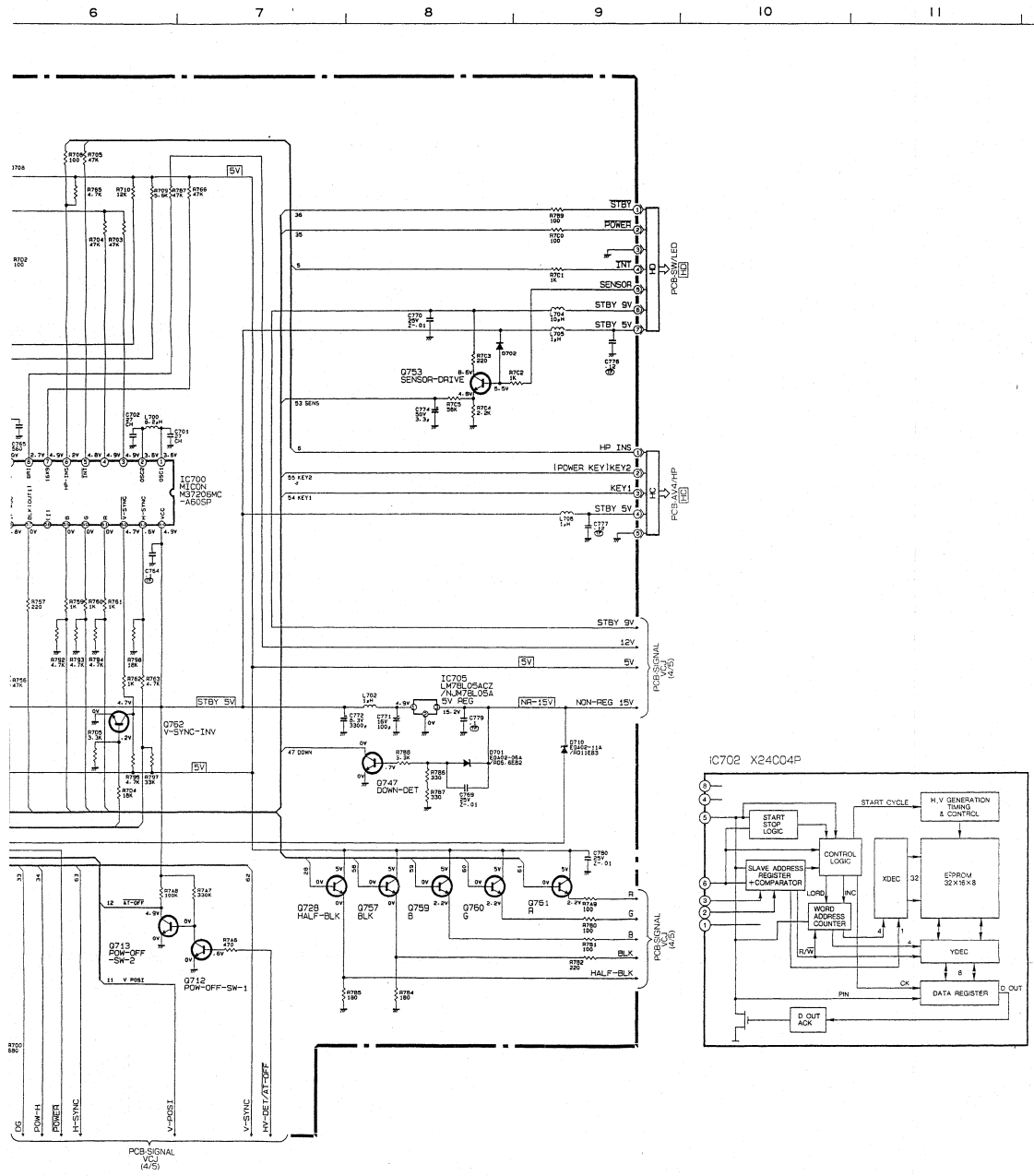
PCB-SIGNAL(1/5)-HF



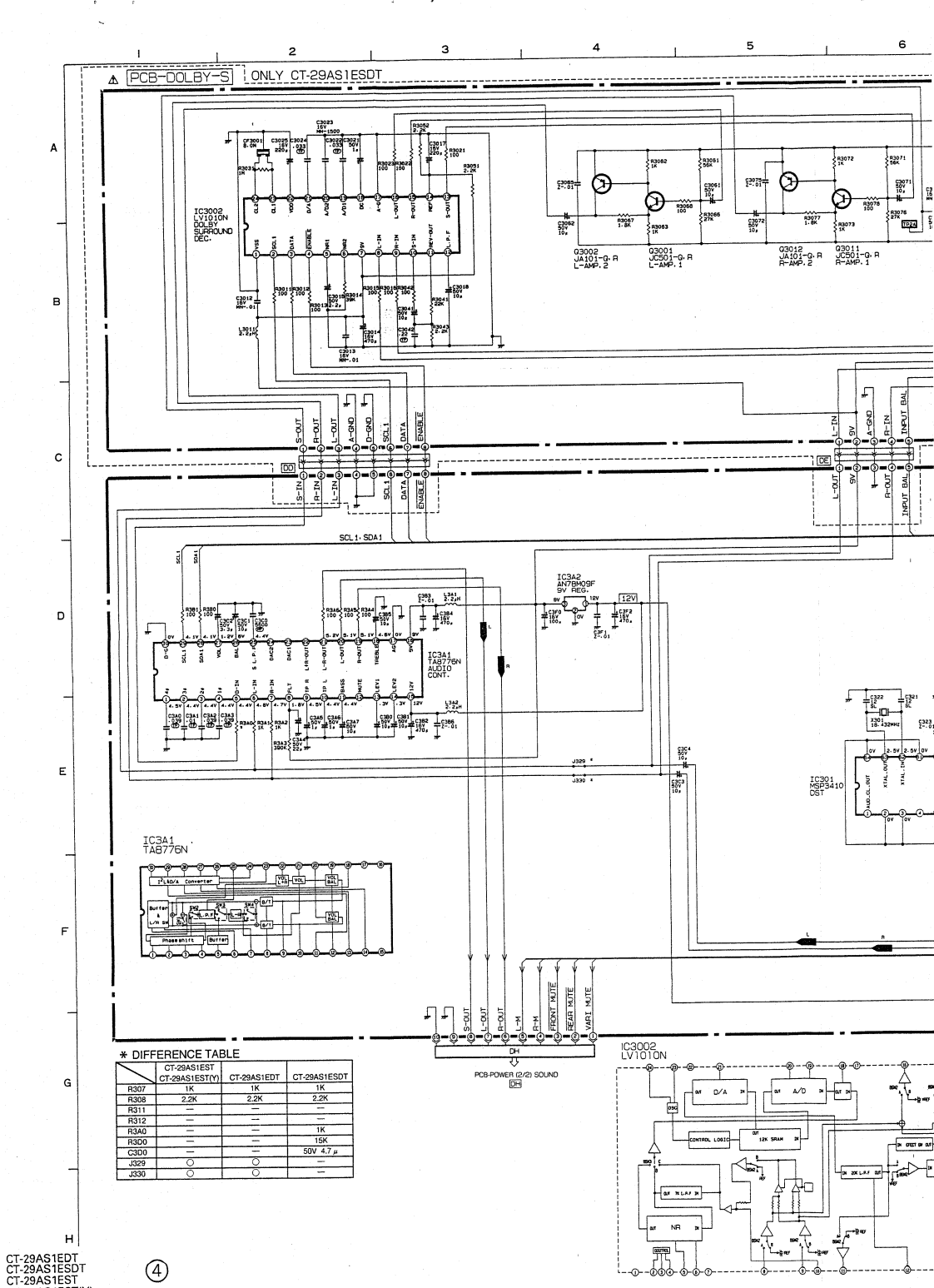
PCB-SIGNAL(2/5)-MICON



DIODES WITHOUT NAME ARE AS FOLLOWS : 1N4148
TRANSISTORS WITHOUT NAME ARE AS FOLLOWS :
NPN TYPE : 2SD1-0-R
PNP TYPE : 2A101-0-R

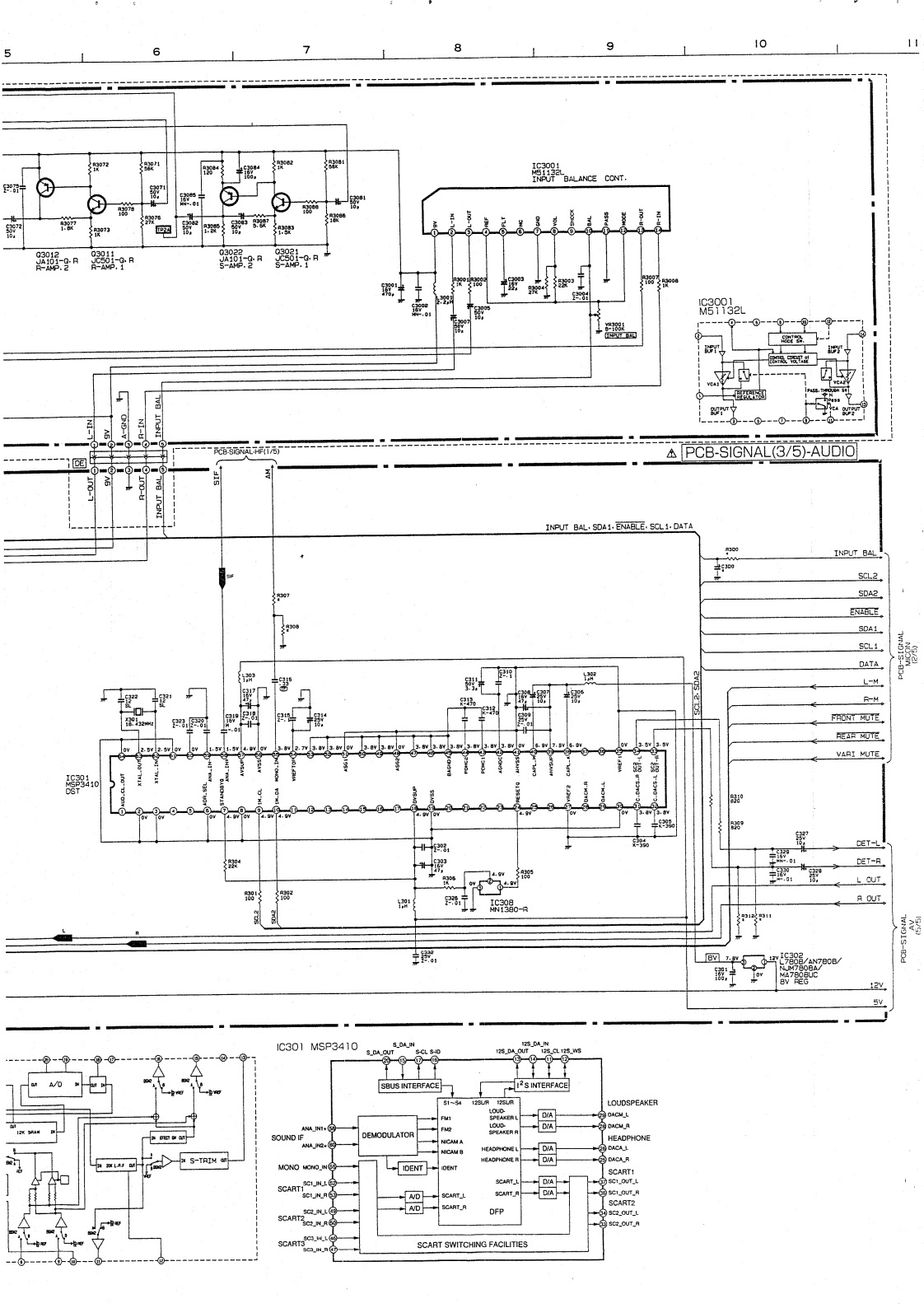


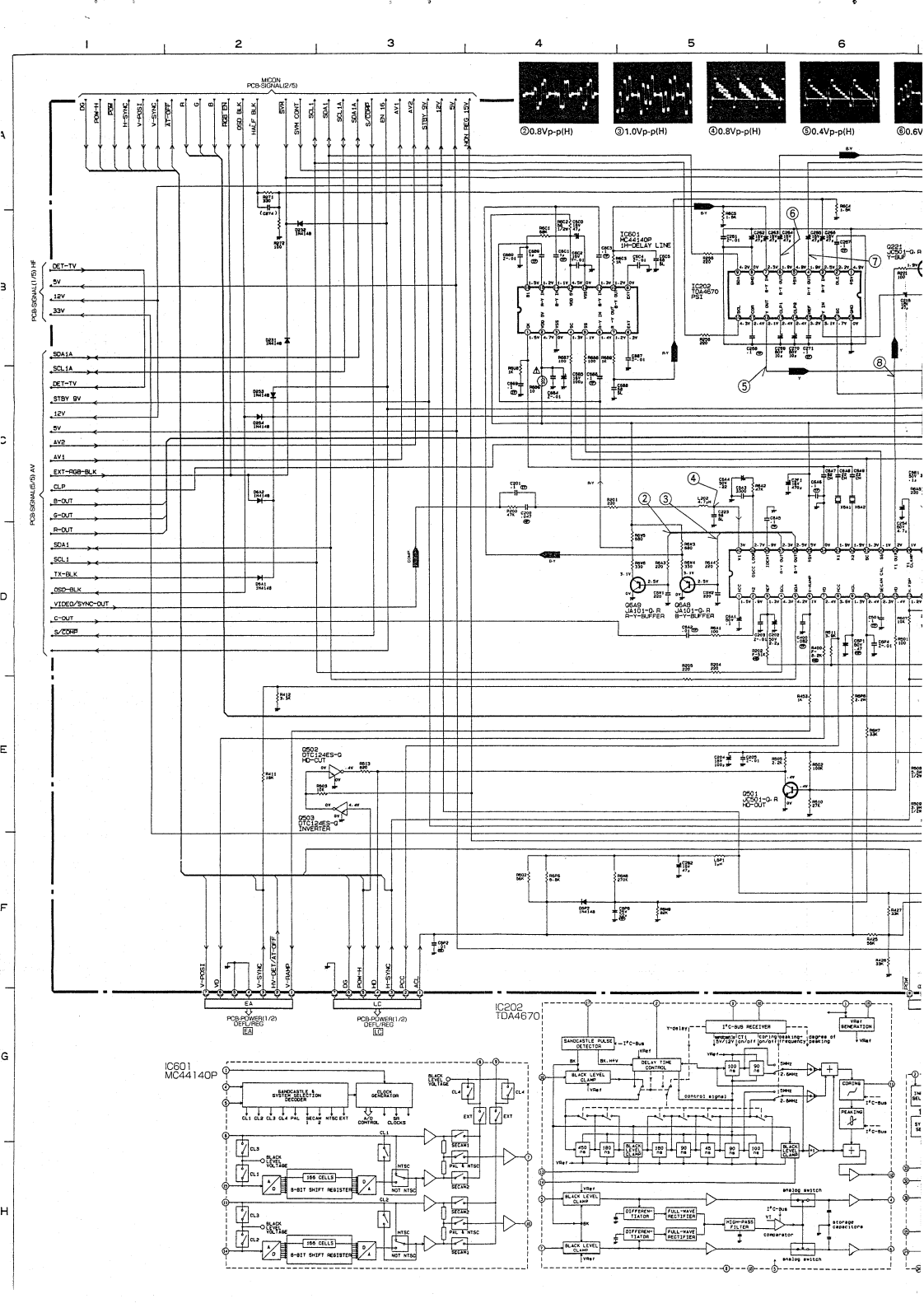
CT-29AS1EDT
CT-29AS1ESDT
CT-29AS1EST
CT-29AS1EST(Y)



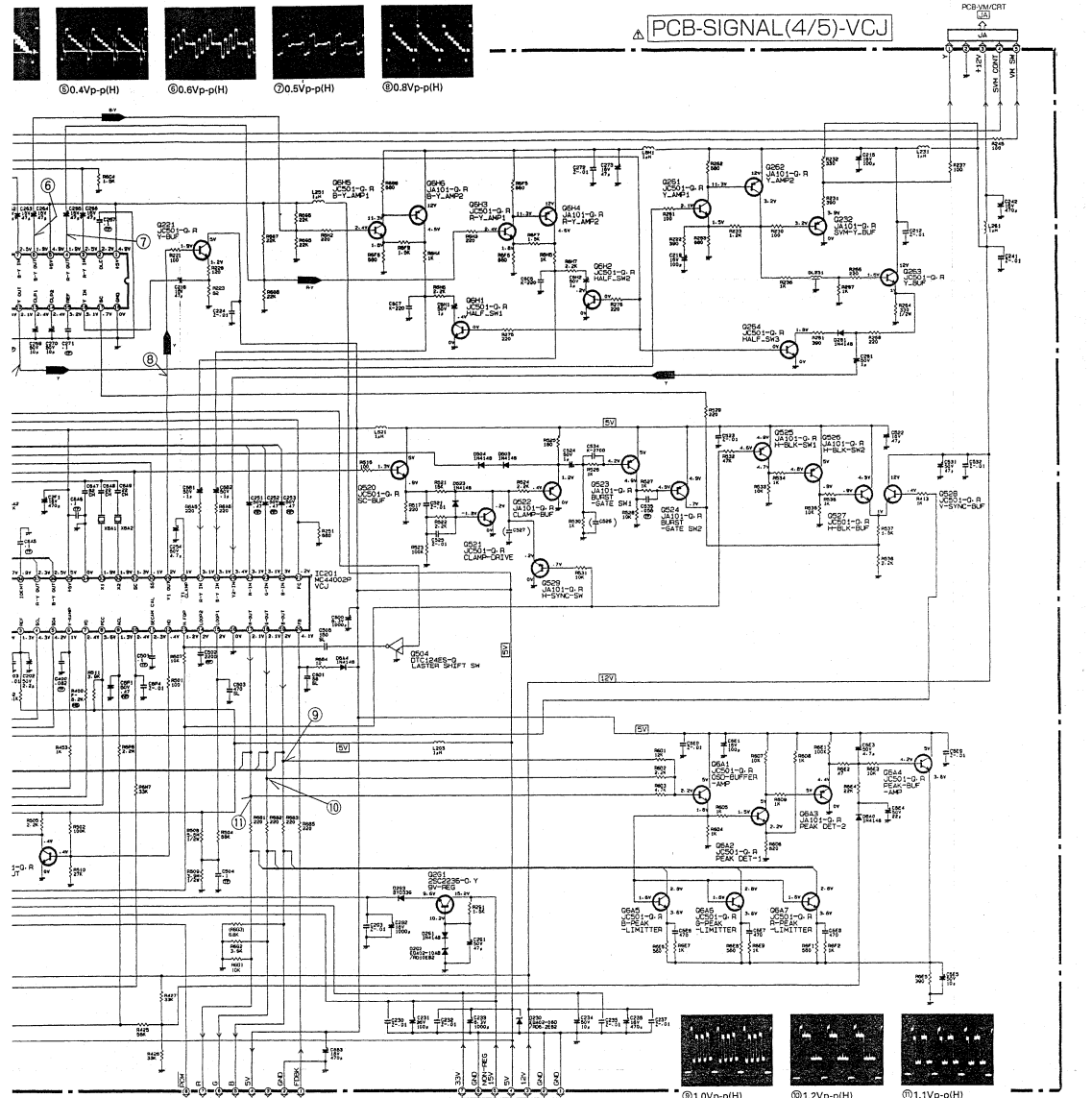
* DIFFERENCE TABLE

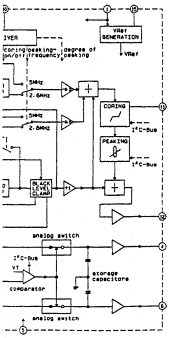
	CT-29AS1EST CT-29AS1EST(Y)	CT-29AS1EDT	CT-29AS1ESDT
R307	1K	1K	1K
R308	2.2K	2.2K	2.2K
R311	—	—	—
R312	—	—	—
R3A0	—	—	1K
R3D0	—	—	15K
C300	—	—	50V 4.7 μ
J329	○	○	—
J330	○	○	—

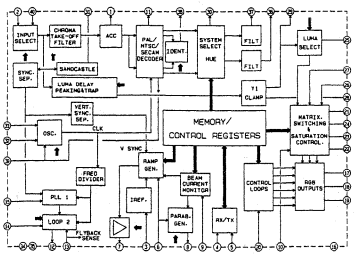

PCB-SIGNAL(3/5)-AUDIO
PCB-SIGNAL(1/5)-HF
IC3001 M51132L INPUT BALANCE CONT.
IC3001 M51132L
IC301 MSP3410 QT
IC308 MN1380-R
IC302 L7808/AN7808/ NJM7808A/ M47808UC 8V REG
INPUT BAL
SCL2
SDA2
ENABLE
SDA1
SCL1
DATA
L-M
R-M
FRONT MUTE
REAR MUTE
VARI MUTE
DET-L
DET-R
L OUT
R OUT
8V
12V
5V
IC301 MSP3410
SBUS INTERFACE
I2S INTERFACE
DEMODULATOR
IDENT
DFP
SCART SWITCHING FACILITIES
LOUDSPEAKER
HEADPHONE
SCART1
SCART2
SCART3
SOUND IF
MONO


MICON
PCB-SIGNAL(2/5)
PCB-SIGNAL(1/5) HF
PCB-SIGNAL(4/5)/(5) AV
DET-TV
5V
12V
33V
SDA1A
SCL1A
STBY 9V
AV1
EXT-RGB-BLK
CLP
B-OUT
G-OUT
R-OUT
SDA1
SCL1
TX-BLK
OSD-BLK
VIDEO/SYNC-OUT
C-OUT
S/CORP
②0.8Vp-p(H)
③1.0Vp-p(H)
④0.8Vp-p(H)
⑤0.4Vp-p(H)
⑥0.6V
IC601
MC44140P
1H-DELAY LINE
IC202
TDA4670
Q648
JA101-Q,R
B-Y-BUFFER
Q649
JA101-Q,R
B-Y-BUFFER
Q503
DTC124ES-Q
INVERTER
Q502
DTC124ES-Q
HD-OUT
Q501
UC501-Q,R
HD-OUT
PCB-POWER(1/2)
DEFL/REG
EA
LC
IC202
TDA4670
IC601
MC44140P

PCB-SIGNAL(4/5)-VCJ

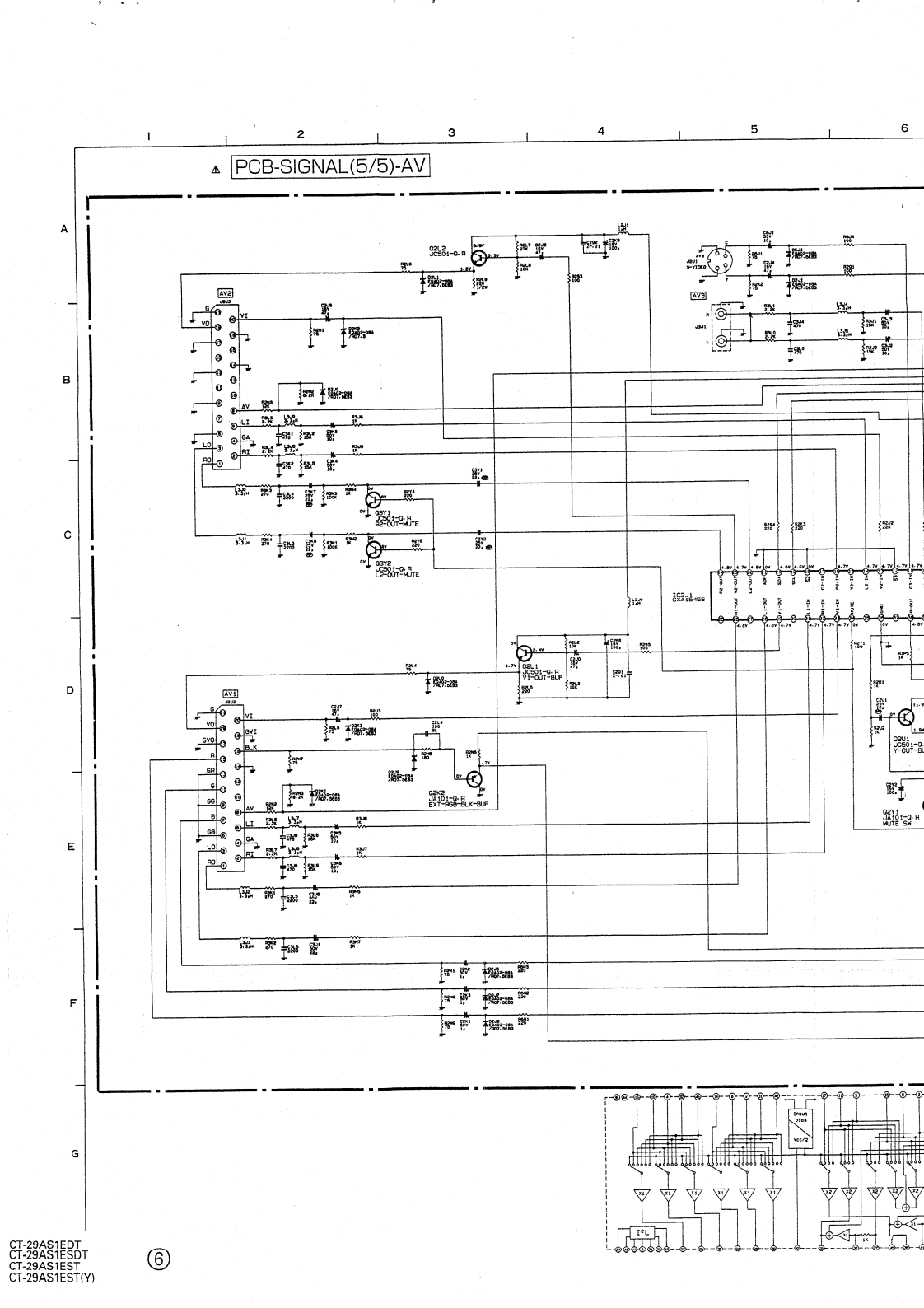


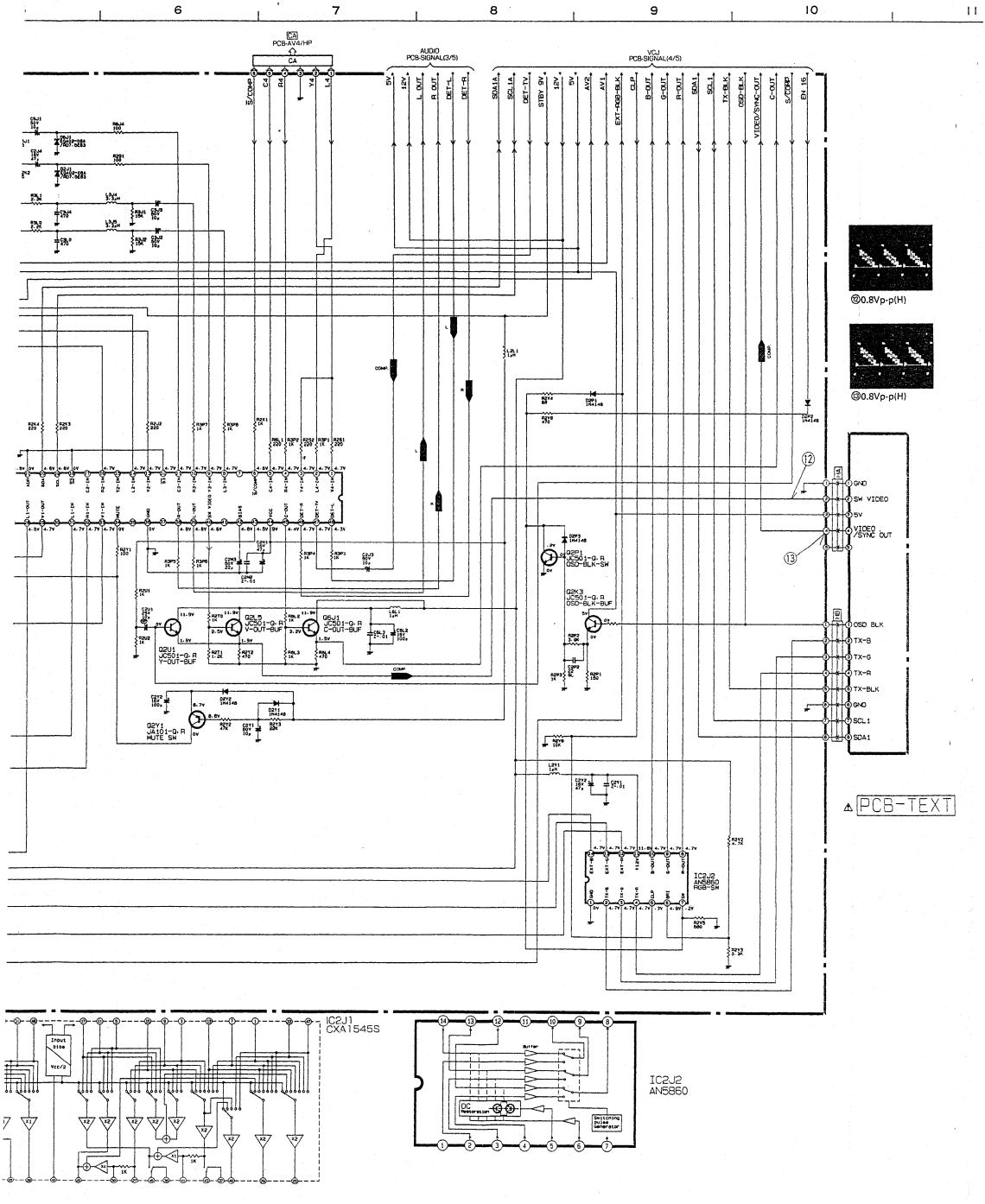


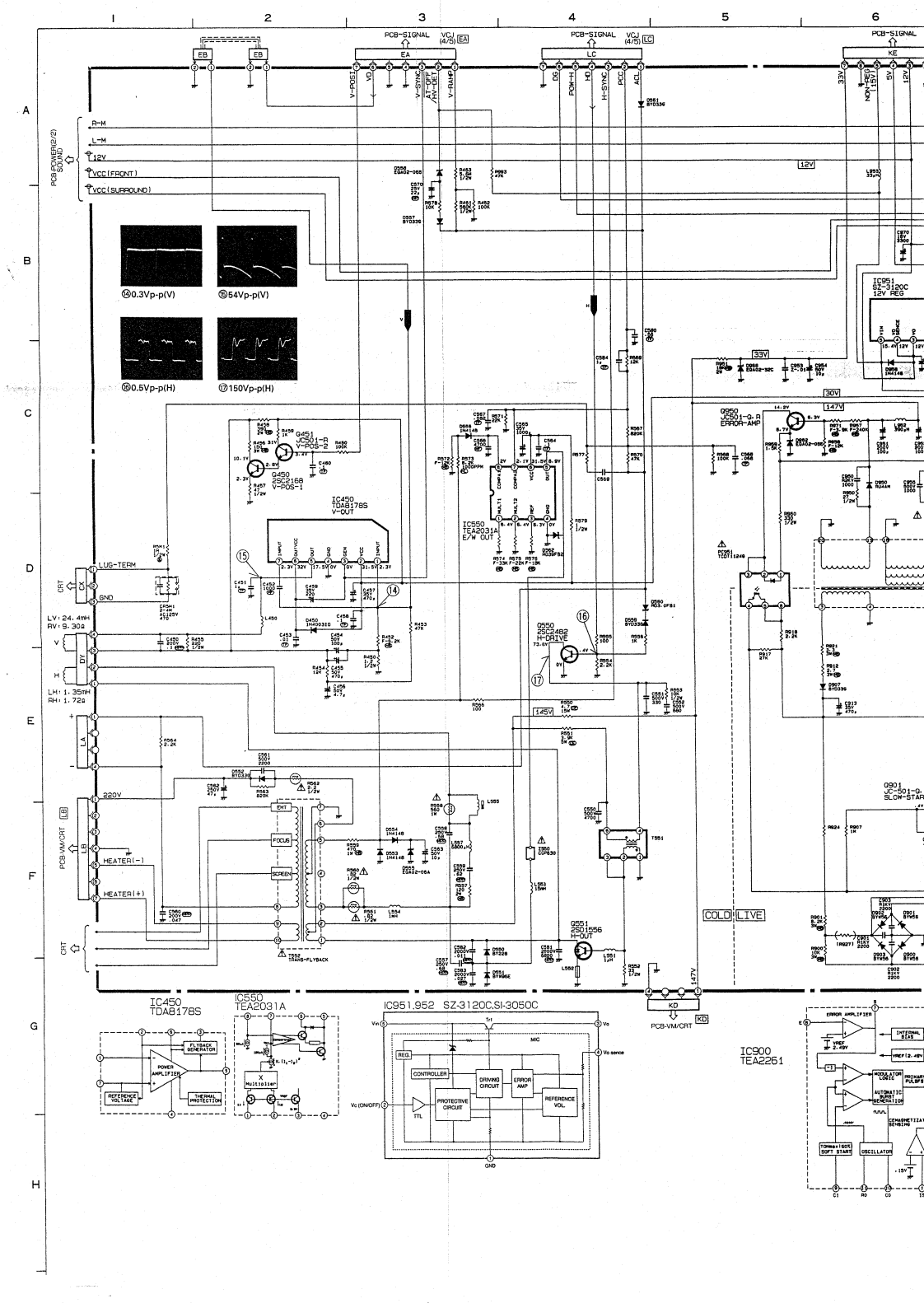


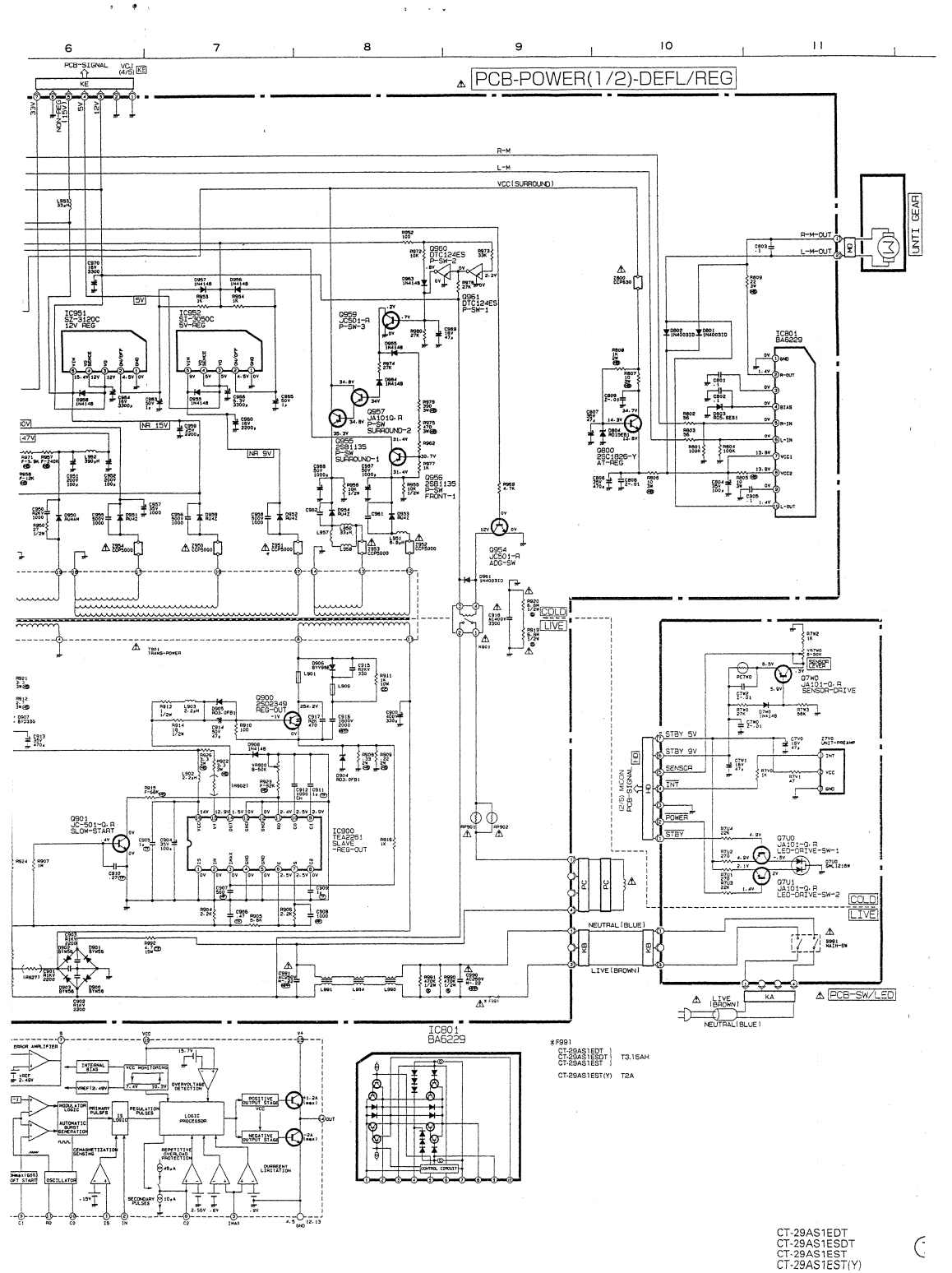
IC201
MC44002

CT-29AS1EDT
CT-29AS1ESDT
CT-29AS1EST
CT-29AS1EST(Y)

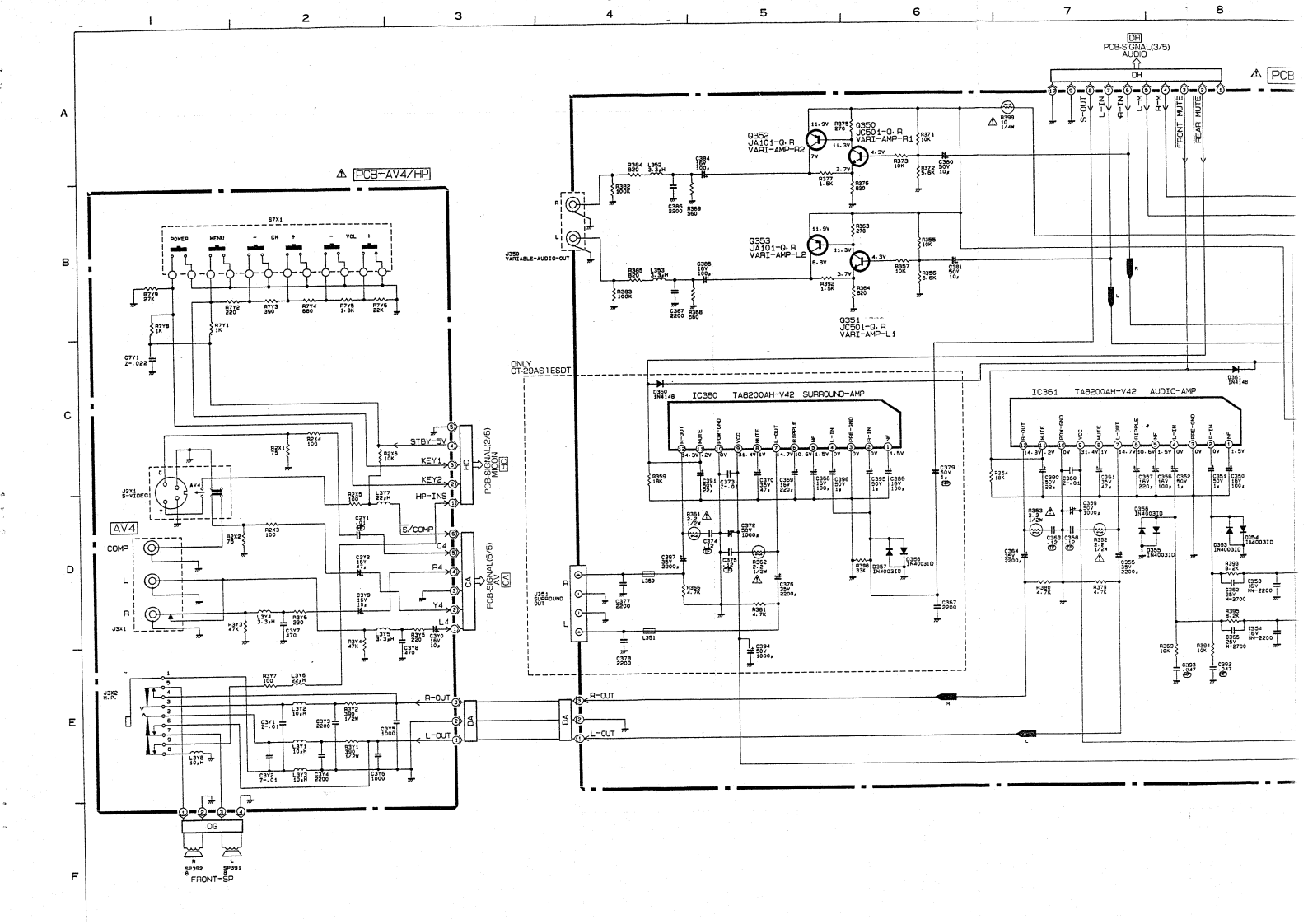

PCB-SIGNAL(5/5)-AV
AV2
AV3
AV1
Q2L3
JC501-Q-R
Q3V1
JC501-Q-R
R2-OUT-MUTE
Q3V2
JC501-Q-R
L2-OUT-MUTE
IC2-J1
CXA1545S
Q2L1
JC501-Q-R
V1-OUT-BUF
Q2K2
UA101-Q-R
EXT-RGB-BLK-BUF
Q2V1
JA101-Q-R
MUTE SW
Q2U1
JC501-Q-
Y-OUT-BU
I2L

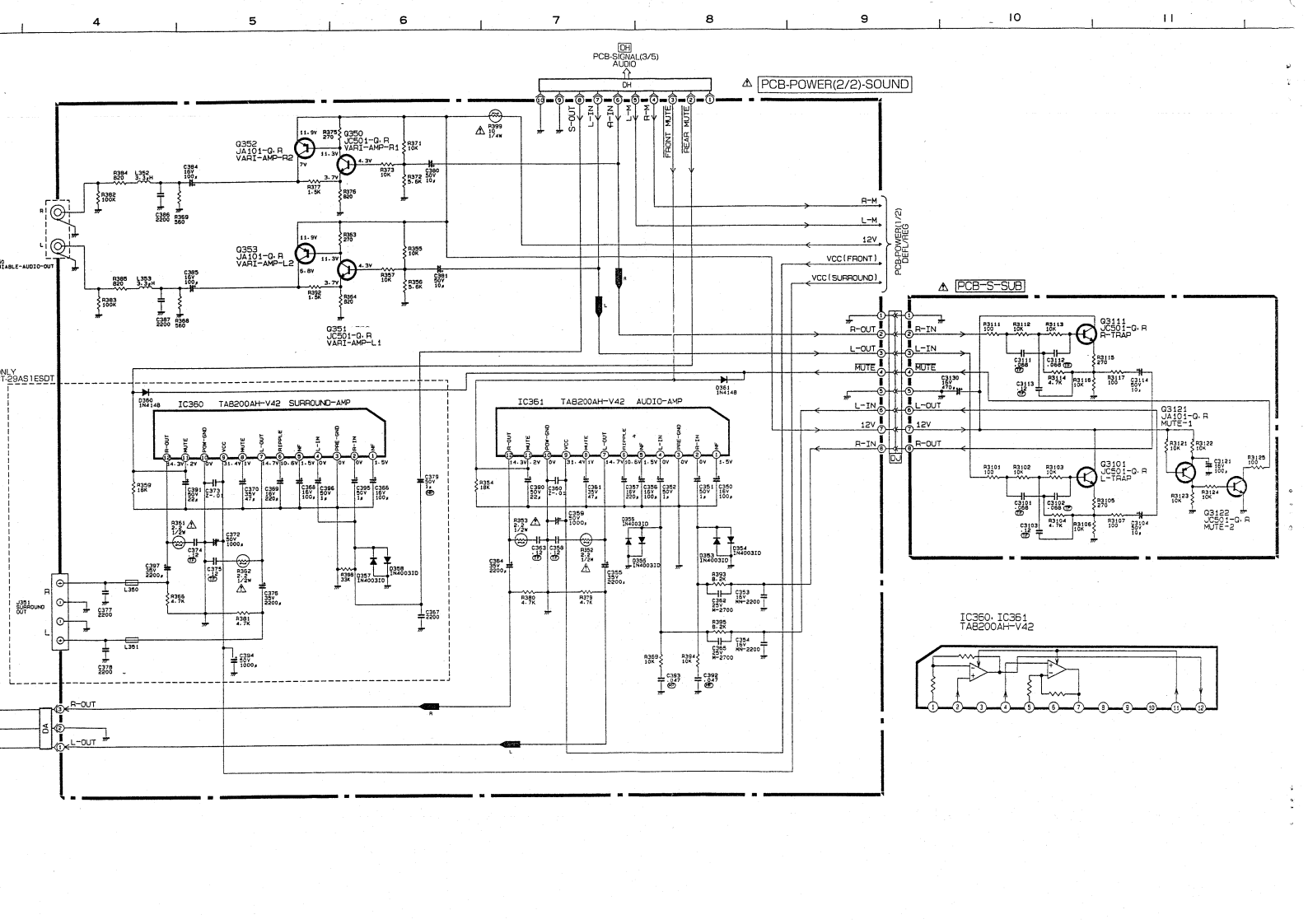

6
7
8
9
10
11
[CA]
PCB-AV4/HP
CA
AUDIO
PCB-SIGNAL(3/5)
VCJ
PCB-SIGNAL(4/5)
5V
12V
L-OUT
R-OUT
DET-L
DET-R
SDA1A
SCL1A
DET-TV
STBY 5V
12V
5V
AV2
AV1
EXT-RGB-BLK
CLP
B-OUT
G-OUT
R-OUT
SDA1
SCL1
TX-BLK
OSD-BLK
VIDEO/SYNC-OUT
C-OUT
S/COMP
EN 16
S/COMP
C4
R4
Y4
L4
⑫0.8Vp-p(H)
⑬0.8Vp-p(H)
GND
SW VIDEO
5V
VIDEO SYNC OUT
OSD BLK
TX-B
TX-G
TX-R
TX-BLK
GND
SCL1
SDA1
PCB-TEXT
IC2J1
CXA1545S
IC2J2
AN5860

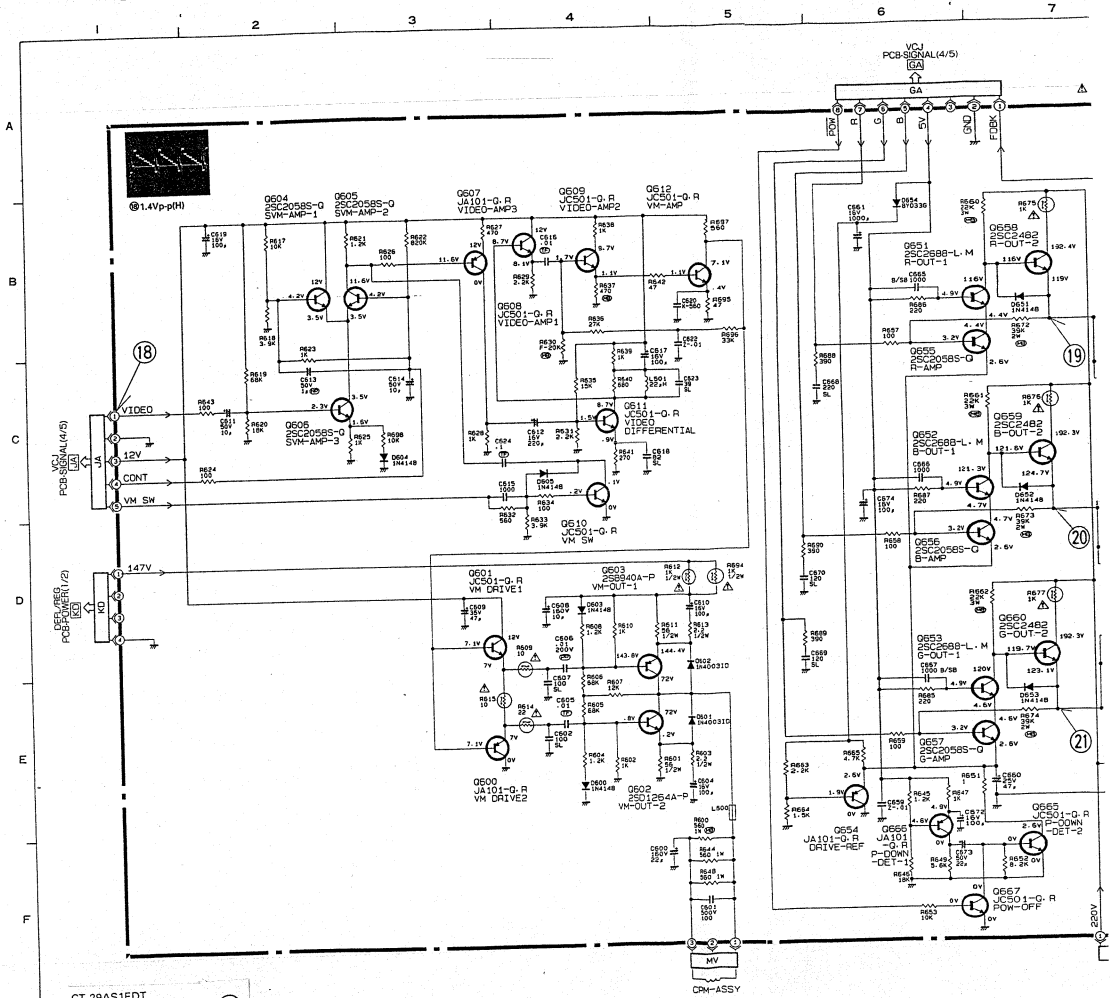

PCB-SIGNAL
EB
EA
LC
KE
V-POS1
VD
V-SYNC
ABL-DET
V-RAMP
DG
PDM-H
HD
H-SYNC
PCC
ACL
33V
NON-REG
5V
12V
PCB-POWER(2/2) SOUND
R-M
L-M
12V
VCC(FRONT)
VCC(SURROUND)
⑭0.3Vp-p(V)
⑮54Vp-p(V)
⑯0.5Vp-p(H)
⑰150Vp-p(H)
IC951 SZ-3120C 12V REG
33V
30V
147V
Q950 VC501-A,B ERROR-AMP
Q451 VC501-R V-POS-2
Q450 2SC2168 V-POS-1
IC450 TDA8178S V-OUT
IC550 TEA2031A E/W OUT
Q550 2SC482 H-DRIVE
Q551 2SD1556 H-OUT
145V
LUG-TERM
CRT
GND
LV:24.4mH
RV:9.3Ω
LH:1.35mH
RH:1.7Ω
220V
PCB-VM/CRT
HEATER(-)
HEATER(+)
FBT
FOCUS
SCREEN
FLYBACK
T951
Q901 VC-501-Q SLOW-START
COLD
LIVE
47V
KD
PCB-VM/CRT
IC450 TDA8178S
POWER AMPLIFIER
FLYBACK GENERATOR
REFERENCE VOLTAGE
THERMAL PROTECTION
IC550 TEA2031A
IC951,952 SZ-3120C,SI-3050C
REG.
CONTROLLER
DRIVING CIRCUIT
ERROR AMP
REFERENCE VOL.
PROTECTIVE CIRCUIT
MIC
TTL
GND
IC900 TEA2261
ERROR AMPLIFIER
INTERNAL BIAS
MODULATOR LOGIC
AUTOMATIC IN REGULATION
OSCILLATOR
SOFT START



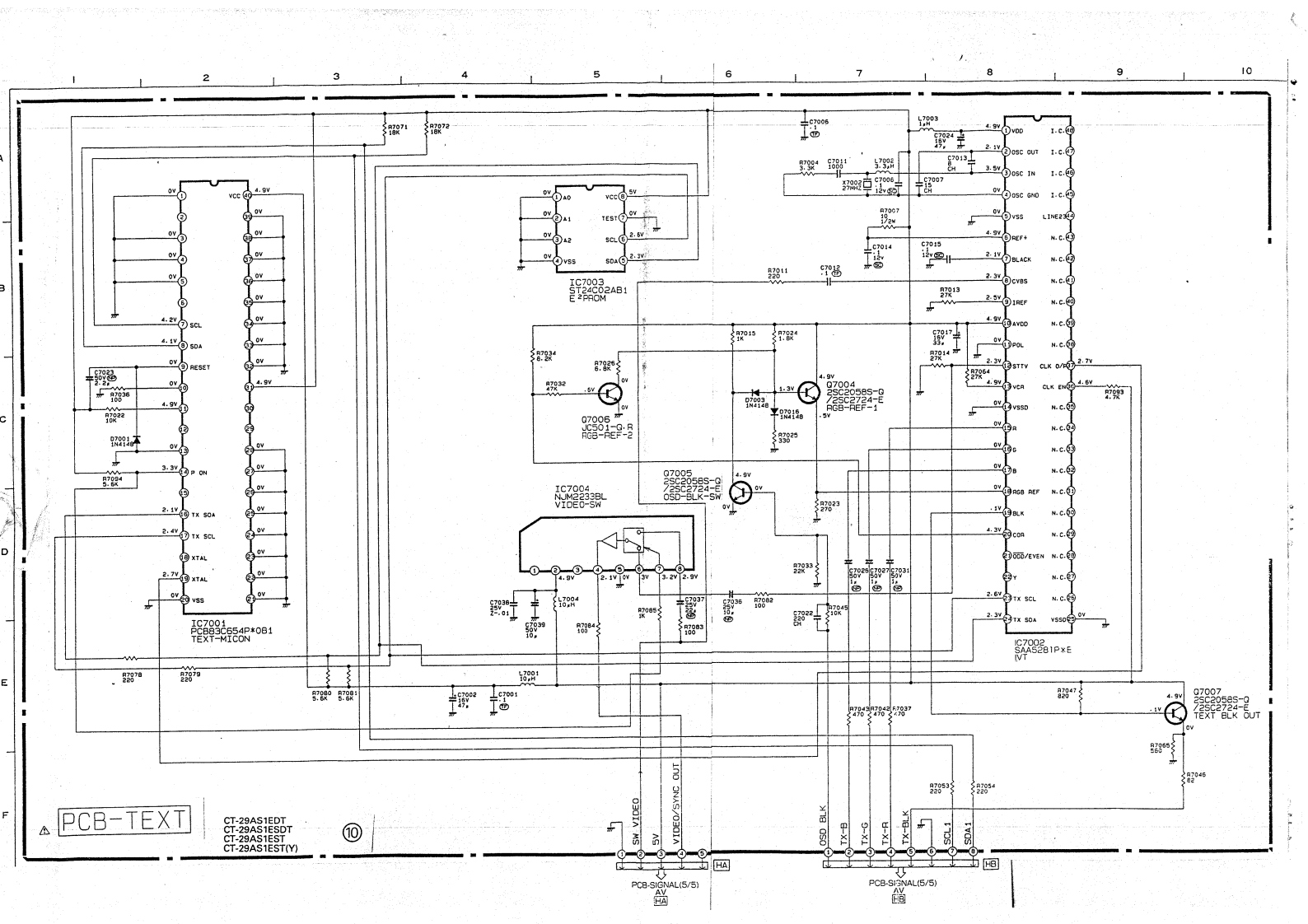
CT-29AS1EDT
CT-29AS1ESDT
CT-29AS1EST
CT-29AS1EST(Y)


PCB-AV4/HP
PCB-SIGNAL(3/5) AUDIO
DH
S7X1
POWER
MENU
CH
VOL
AV4
COMP
J331
J321 S-VIDEO
J322 H.P.
J350 VARIABLE-AUDIO-OUT
J351 SURROUND OUT
DG
FRONT-SP
STBY-5V
KEY1
KEY2
HP-INS
S/COMP
C4
R4
Y4
L4
R-OUT
L-OUT
PCB-SIGNAL(2/5) MAIN (HC)
PCB-SIGNAL(5/5) AV (CA)
Q352 JA101-Q,R VARI-AMP-R2
Q350 JC501-Q,R VARI-AMP-R1
Q353 JA101-Q,R VARI-AMP-L2
Q351 JC501-Q,R VARI-AMP-L1
ONLY CT-29AS1ESDT
IC360 TA8200AH-V42 SURROUND-AMP
IC361 TA8200AH-V42 AUDIO-AMP
S-OUT
L-IN
R-IN
L-M
R-M
FRONT MUTE
REAR MUTE

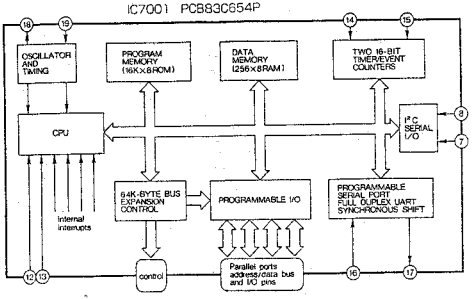

PCB-SIGNAL(3/5)
AUDIO
DH
PCB-POWER(2/2)-SOUND
S-OUT
L-IN
R-IN
L-M
R-M
FRONT MUTE
REAR MUTE
Q352
JA101-Q,R
VARI-AMP-R2
Q350
JC501-Q,R
VARI-AMP-R1
Q353
JA101-Q,R
VARI-AMP-L2
Q351
JC501-Q,R
VARI-AMP-L1
R-M
L-M
12V
VCC(FRONT)
VCC(SURROUND)
PCB-POWER(1/2)
DEFLAREG
PCB-S-SUB
R-OUT
L-OUT
MUTE
L-IN
12V
R-IN
IC360 TA8200AH-V42 SURROUND-AMP
IC361 TA8200AH-V42 AUDIO-AMP
Q3111
JC501-Q,R
R-TRAP
Q3101
JC501-Q,R
L-TRAP
Q3121
JA101-Q,R
MUTE-1
Q3122
JC501-Q,R
MUTE-2
IC360, IC361
TA8200AH-V42
R-OUT
L-OUT



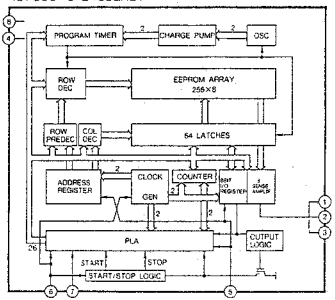
CT-29AS1EDT
CT-29AS1ESDT
CT-29AS1EST
CT-29AS1EST(Y)


PCB-TEXT
CT-29AS1EDT
CT-29AS1ESDT
CT-29AS1EST
CT-29AS1EST(Y)
10
IC7001
PCB83C654P*081
TEXT-MICON
IC7003
ST24C02AB1
E2PROM
IC7004
NJM2233BL
VIDEO-SW
IC7002
SAA5281PxE
IVT
Q7004
2SC2058S-Q
/2SC2724-E
RGB-REF-1
Q7005
2SC2058S-Q
/2SC2724-E
OSD-BLK-SW
Q7006
UC501-Q-R
RGB-REF-2
Q7007
2SC2058S-Q
/2SC2724-E
TEXT BLK OUT
SW VIDEO
5V
VIDEO/SYNC OUT
OSD BLK
TX-B
TX-G
TX-R
TX-BLK
SCL1
SDA1
HA
HB
PCB-SIGNAL(5/5)
AV
HA
PCB-SIGNAL(5/5)
AV
HB

IC7001 PCB83C654P



IC7003 ST24C02AB1



IC7002 SAA5281P/E